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## Address.

### THE USE OF MAGNETISM FOR LOCALIZING NEEDLES IN THE TISSUES; WITH THE REPORT OF CASES.\*

BY GEORGE H. MONKS, M.D., BOSTON.

A SHORT time ago I published in the JOURNAL a preliminary report on the experimental use of magnetism for locating needles in the tissues.† Some days thereafter my attention was called for the first time to a few articles in certain ophthalmological journals, in which essentially the same method that I have employed was advocated for the purpose of determining the position of bits of steel or iron within the eye. On perusing these articles I met with references to others, and it soon became clear to me that the method which I have suggested is not new, even in general surgery, as I supposed it was when I presented my first communication on the subject.

It appears that in 1880 Thomas R. Pooley<sup>3</sup> published an article on the detection of steel and iron bodies in the eye by means of a magnetic needle. Asmus<sup>12</sup> in 1894, elaborating the idea, devised a very delicate apparatus, which he called a "sideroscope," an instrument which a few years later was modified by Hirschberg.<sup>14</sup> In the same year in which the description of the apparatus of Asmus was published, Gallemarts<sup>13</sup>

\* The methods herein described were demonstrated, and some of the cases were reported, at a meeting of the Boston Surgical Society, March 1, 1915. See JOURNAL, p. 629.

† The JOURNAL, Vol. cxxiii, No. 8, Feb. 25, 1915, p. 295.

demonstrated a "magnetometer" devised by Gerard for the same purpose.

The use of these instruments, which has apparently always been very limited, has now, I understand, been largely done away with since the introduction of the Roentgen rays. Although the instruments themselves are very ingenious and are capable of great precision, they are also very delicate and are easily affected by outside influences, electrical, magnetic, etc. They also require an expert to run them. I am told that it is very doubtful whether they have in ophthalmological work any single advantage over the Roentgen rays, except, possibly, in the saving of time.

The first person of all, however, so far as I can discover, to use magnetism for the purpose of localizing steel or iron bodies in any part of the body, was Smee,<sup>1</sup> whose article appeared in 1844; and to him, therefore, apparently belongs the priority in connection with this procedure. Since his time a few other articles on the use of this method in general surgery have been published by different writers, but no great improvement on Smee's original suggestions has apparently been offered.

Smee recommended that the foreign body buried in the tissues should first be magnetized; and for this purpose he suggested "transmitting a galvanic current, at right angles, to the suspected part," or magnetizing the object by induction, using an electro-magnet, and he recommended that the magnet be held as close as possible to the supposed foreign body for about half an hour. For an indicator he used a sewing needle suspended by a silk thread. He also

used a needle, about six inches long, mounted on a steel point. He referred to a case in which he was able to detect "a piece of needle impacted in the finger of a young woman."

Aveling<sup>2</sup> recommended the use of the magnetized needle suspended by a silk thread, but he did not speak of the necessity of first magnetizing the buried needle. He referred to two cases where apparently this mode of detection was used with success.

J. H. Pooley<sup>4</sup> conducted a number of experiments, and as a result made the statement that in the magnetic test properly applied "we have a certain and available means of diagnosing the presence of needles buried in the flesh, even when imbedded at considerable depth." He thought the method deserved to be more thoroughly known and appreciated.

Th. Kocher<sup>5</sup> related the case of a woman who consulted him on account of pain in the thenar eminence of the right thumb. The presence of a foreign body in the tissues was thought possible, although no definite history was available. An incision had already been made by another doctor, but no foreign body had been found. As the pain persisted, the median nerve was exposed through an incision near the elbow, and then stretched but the pain continued. A neurologist, whom the patient finally consulted, expressed the opinion that her symptoms were due to the presence of a foreign body, and recommended another operation. The attempt was made by means of a large electro-magnet to draw the foreign body to a place where it might be definitely localized by the sensations of the patient, or by palpation, but without success. The foreign body was, however, finally localized by a delicate galvanometer, and was at once removed through an incision. Kocher, referring to the "Vorzügliche Diagnose" of the neurologist, says that the evidence furnished by the use of the galvanometer was so striking that, after he had witnessed the demonstration, he not only was certain as to the presence of a needle in the tissues, but was sure that he would be able to find it. Apparently neither Kocher, nor those who subsequently wrote upon this subject, were aware of the early articles of Smee, Aveling and others.

Dumont<sup>6</sup> reported the case of a washerwoman who forced a needle into the thenar eminence of the right hand, about half of it remaining in the tissues. After several unsuccessful attempts to find the needle through incisions, it was finally localized by the use of an electro-magnet and an astatic needle,<sup>\*</sup> and was then removed.

Kälin<sup>7</sup> published the details of a number of experiments made by him on the magnetic attraction exercised by needles, knife-blades, bits of steel, etc. In the process of magnetizing these objects, magnets of various kinds were used, while a galvanometer, or astatic needles were employed as indicators.

Graser<sup>8</sup> had a case in which he was successful in locating a needle by magnetic means. He thought the method a good one, but considered that its use must be limited to places where a large electro-magnet is available, since without previous magnetization the test succeeds only when the foreign bodies are of very large size.

Kummer<sup>9</sup> reports the case of a seamstress, in which the fragment of a sewing needle was removed from the right knee, after it had been magnetized by an electro-magnet, and localized by a mirror galvanometer.

Lauenstein<sup>10</sup> relates a case in which the fragment of a needle lay imbedded in the palm of the hand for six weeks, and was then correctly localized by the use of a magnetic needle. The foreign body was found and removed.

Charon<sup>11</sup> gives the case of a boy of nine years, in whose knee-joint a needle fragment was accurately localized by means of the apparatus of Gerard (which apparatus apparently has a telephonic attachment). A galvanometer was used as a control.

The above articles vary greatly in their interest and value: while in some of them it was evident that the writers understood very little about the subject of magnetism, and that they had apparently made no effort to study it; in others a number of careful and systematic experiments on the subject were recorded. Little or no weight, however, was laid upon the fact that it is the ends of the buried needle (that is, the two poles) which attract or repel, and not the body as a whole—a statement which can easily be proved by using the suspended needle as an indicator, or even a compass.

#### CASES.

I take the liberty of reporting here a few cases in which I have endeavored to localize needle fragments in the tissues by means of magnetism; and, after reporting these cases, I shall try to state definitely, of what practical use, if any, such a method may be at the present time, especially now that we have the x-rays. The cases herewith reported were referred to me by my colleagues at the Boston City Hospital, and I take this occasion to acknowledge their kindness. All the localizations were done by me, and also all the operations, except in case No. 5, and in one other.

CASE 1. (Referred by Dr. J. Baptist Blake.) Sarah B., 40 years old, was washing clothes on the evening of Feb. 18, when a needle entered her right hand, point first. The needle broke, and about half of it remained in the tissues. The next day she went to the City Hospital, where an x-ray photograph was taken. The plate having been examined to determine the approximate position of the needle-fragment, and also its axis, a horse-shoe magnet (kindly given to me by Dr. R. A. Coffin) was applied in such manner as to bring the long axis of the buried needle as nearly as possible into the line between the two poles of the magnet, as

\* "A magnetic needle whose directive property has been neutralized." Century Dictionary.

shown in Fig. 1. The magnet was held in that position for a few moments only. This figure also illustrates the well-known fact that, when a steel or iron body is magnetized by one pole of a magnet, the end of the body which is nearest that pole acquires a polarity opposite to that of the adjacent pole of the magnet; that is, the end of a body nearest to the N pole of a magnet becomes the S pole of the body, and the end of the body nearest the S pole of the magnet becomes the N pole of the body.



FIG. 1.

Diagram indicating the general location of the needle, and showing the method of applying the horse-shoe magnet so as to bring the long axis of the needle into the line between the two poles of the magnet.

A magnetized steel needle, about half an inch long, suspended by a fine silk thread, was then passed over this region, close to the skin, when the attraction and repulsion of the two poles of this needle showed with accuracy where the two ends of the buried needle lay. The N pole of the indicator needle was attracted to the S pole of the buried one, and the S pole of the indicator needle to the N pole of the buried one. (See Fig. 2). On the other hand, either pole of the indicator needle was repelled by the similar pole of the buried needle.

Under ether, an incision was made in the long axis of the buried needle, and, finally, the indicator being used from time to time, the fragment was found at the bottom of the wound and removed. It was found best, at the time that the indicator was being used, to retract the lips of the wound by means of sutures, as metallic forceps or retractors attracted the indicator needle and interfered with the search. The needle fragment removed measured 7/16 of an inch (11 mm.) in length.

**CASE 2.** (Referred by Dr. Walter C. Howa.) Frances W., 51 years old. Needle penetrated foot on Feb. 20, while patient was walking across floor "in stocking-feet." She went immediately to the hospital, where an attempt was made to remove the needle, but without success.

On Feb. 24, an x-ray plate having been furnished (Fig. 3), the buried needle was magnetized by one pole of the magnet, and that end of the needle

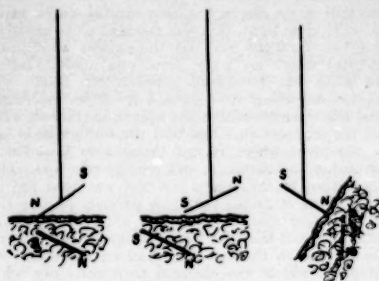


FIG. 2.

Diagrams showing fragments of needles (buried in the tissues), and indicator needles suspended by silk threads (outside the skin). The buried needles have been magnetized, so that the S pole of each happens to be nearest to the skin.

The S pole of each indicator needle is being attracted to the pole of the buried one, and the S pole of each indicator needle is being attracted to the N pole of the buried one.

In the first two diagrams the skin surface is horizontal, in the third one it is inclined at an angle.

which was nearest the skin readily located even before the stitches were removed. Ether was given, the wound was opened, and the needle was readily found and removed. It measured about 9/16 of an inch (15 mm.) in length.

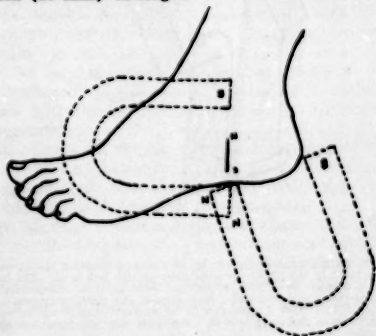


FIG. 3.

Sketch made from the x-ray plate, showing, from one point of view, the position of the needle in the foot. The dotted line indicates two of the different positions in which the magnet was held: one pole (in this case N) of the magnet being kept as near as possible to the nearest part of the buried needle, and the other (S) being brought as near as the shape of the foot would allow to the other end of the buried needle.

**CASE 3.** (Referred by Dr. Howe.) Majorie J., 14 years old. Fragment of needle in tip of left index finger. Although a Roentgen plate was furnished, it was hardly necessary to have one, since a dark spot in the skin indicated the exact position of the needle-fragment. The fragment was very minute, and the indicator was only feebly attracted to it. It was removed without difficulty.

**CASE 4.** (Referred by Dr. Horace Binner.) Winifred F., 24 years old. On March 2, while the patient was using a sewing-machine (run by power) the machine needle entered the terminal phalanx of the little finger of the left hand, and then broke off. It was not certain that the needle fragment

was still in the finger, but, as a careful search failed to bring it to light, this was thought to be possible; and, therefore, the next day the patient went to the hospital where an x-ray plate was made. Before the plate was developed, however, the needle was magnetized along its supposed track in the finger, (see Fig 4), after which the indicator showed, without the slightest question, that the foreign body was in the place where it was thought to be. Under novocaine anesthesia, it was readily removed. One interesting feature about the test was that the indicator was attracted far more strongly on one side of the finger than on the other side, thus proving without doubt that the buried fragment was nearer the surface on the one side than on the other—an inference which was changed to a certainty when the x-ray plate was brought. The incision was of course made on that side, and the needle was readily found and removed. It was  $5/16$  of an inch (8 mm.) in length.

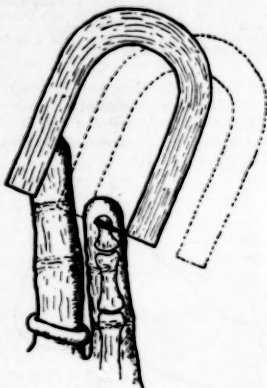


FIG. 4.

Showing diagrammatically the position and direction of the needle-fragment in the tip of the little finger of the left hand. The horseshoe magnet is in such a position that the line between its two poles corresponds with the long axis of the needle-fragment. The dotted lines show the position of the magnet when it was moved so as to bring the other pole of the magnet near the other end of the needle.

CASE 5. (Case of Dr. Binney.) Lillie M., 24 years old. While she was wiping off a table a needle ran into the fleshy part of the right hand at the base of the thumb. On the next day, March 24, she went to the hospital, where the needle was magnetized, and localized before the Roentgen plate, which had previously been made, was brought to the clinic. The needle was readily found, and removed by Dr. Binney. It was  $7/8$  of an inch (22 mm.) in length.

Besides these five cases, there have been a few others in which I have tried magnetic localization. In some of them the test was fairly successful, while in others it failed entirely. In two of the cases (from the Oral Surgery Clinic at the Harvard Dental School) the fine hollow needles of novocaine syringes had been broken off in the soft tissues inside the mouth: in the one case on the inside of the ascending ramus of the jaw, and in the other in the gum close to the periosteum covering the alveolar process.

In both cases the breath of the patient prevented the indicator needle from being at rest, but a small compass introduced into the mouth gave rough information as to the general position of the needles, both of which were found and removed. In the case of a boy, (referred by Dr. F. B. Lund) in which a small needle fragment, according to the x-ray plate, lay deeply imbedded beneath the ligamentum patellae, the test failed entirely, probably on account of the depth at which the needle lay. It was only moderately successful in the case of a man (referred by Dr. J. C. Hubbard) in whose hand lay a piece of steel from the head of a cold chisel. The piece was about  $1/4$  inch long and  $1/8$  inch wide, and lay at considerable depth from the skin surface. It is quite possible that in this case the steel fragment was not sufficiently hard to retain a full charge of magnetism. That it did receive a certain amount of magnetism, however, was proved by the fact that, after it had been removed, it attracted the indicator needle in a very noticeable degree whenever the needle was brought near to it.

#### MAGNETIZING THE BURIED NEEDLE.

In my experience it is absolutely necessary in some way to magnetize the buried needle, for unless this is done, a magnetic indicator is not affected in any way until the indicator is so close to the needle as almost to touch it. For magnetizing the needles in all the cases here reported I have used either electro-magnets or ordinary steel magnets. Without much question a needle fragment may be charged with magnetism more strongly by an electro-magnet than by the ordinary steel one; and also it is probable that within certain limits the more powerful the electro-magnet the more powerful the charge will be, and the greater the distance through which it can be transmitted to the needle fragment. When, therefore, an electro-magnet is available it should perhaps be used in preference to an ordinary steel magnet; but for ordinary purposes a large horse-shoe magnet, especially on account of its low cost\* and the ease and simplicity of its use seems to answer most requirements. The method of using this magnet is illustrated in Fig. 1, in which the importance of holding the magnet, if possible, in such a manner that the long axis of the needle shall lie in the line between the two poles of the magnet is emphasized. Under such circumstances the buried needle becomes magnetized instantaneously, but the charge it receives is apparently somewhat increased by bringing each pole of the magnet successively as close to the adjacent pole of the needle as possible, and by repeating the action several times (See Fig. 4).

#### USING THE INDICATOR.

For an indicator I have generally used a very fine magnetized needle suspended by a delicate

\* Such a magnet may be bought at the Holtzner-Cabot factory in Brookline for sixty cents.



silk thread, or even by a human hair. I have also used a very small compass, as well as various other contrivances made of steel, and of different shapes and sizes. Generally the indicator, having been sterilized by immersion in 70% alcohol, was moved slowly over the supposed site of the buried needle. If the indicator were a suspended needle, it was allowed to swing freely in the air. In using such a needle one should not forget that its natural tendency is to lie in a line from the N. to the S., and that, when swinging free, it is also very subject to outside influences, such as draughts, electric currents, etc. I have at times found it best to make a separate test with each pole of the indicator, and for this purpose I have first drawn the needle through the knot in the silk thread in such a manner as to enable one pole to hang lower than the other, and then, after carrying this pole slowly over the skin surface of the affected region, I have done the same thing with the other pole. The test will, I think, be found more delicate when carried out in this manner than when the indicator needle is horizontal and both poles are on the same level. Once or twice a test was made with the magnetic needle suspended within a vacuum in a test-tube. I have not used a galvanometer or even astatic needles. Such instruments may perhaps be of use in cases in which the foreign body cannot be found by simpler means.

#### THE OPERATION.

If the needle is superficial, and its position is pretty definite, local anesthesia will be sufficient; on the other hand, if it be deeply placed, general anesthesia will probably be more satisfactory. As a bloodless condition of the part is of prime importance a tourniquet should be used, if possible.

If the axis of the needle lies more or less parallel with the skin surface an incision which is at right angles to an axis of the needle is probably the proper one from a purely operative point of view;\* and yet, as the ends of the needle will not be exposed in such a wound, an incision of this kind, if the operator wishes to employ the magnetic test from time to time during the progress of the operation, does not seem to be ideal. In case the magnetic test, combined or not with the x-ray plate, shows one or both ends of the needle to be within easy reach, it would seem best to make the incision so as to expose one of these ends or the other. This incision might still be made at right angles to the needle, and yet be near to one of its ends. A second incision might be made to join the first one, if necessary, making a V, or a T, or even a crucial, incision. Through such incisions the magnetic test could be applied from time to time.

\* Graser was apparently the first to emphasize this, for he recommended making an incision "in gerader Richtung gegen die angenommene Lage des Fremdkörpers."

For retraction of the edges of the wound, during the test, instruments made of steel or iron should not be used. Satisfactory retraction may be secured by means of ligatures passed through the lips of the wound, or by the use of aluminum strips, or some other simple method.

When a part of the needle has been exposed in the wound one should be very careful in all manipulations lest the foreign body be again lost to view. This is one of the situations where a steady hand and a delicate touch are especially desirable.

#### CONCLUSIONS.

Although the brilliant and satisfactory results obtained through the use of the Roentgen rays apparently seem to have rendered unnecessary all other methods of localization, I cannot help feeling that in *certain cases*, even in those in which a Roentgen plate has been furnished, the magnetic test, if properly conducted, may be of distinct assistance to the surgeon. This test will probably be most successful in the following cases:—

1. Cases in which the needle fragment is large enough to receive and to retain a charge of magnetism sufficient to attract the indicator needle.
2. Cases in which the needle fragment is near enough to the skin to be strongly magnetized, and also near enough to attract the indicator needle.

3. Cases in which, during the progress of an operation, the incision opens up the tissues in such a manner that the indicator needle may be brought very close to the foreign body.

In all other cases, especially in those in which the needle fragment is very fine or very small, and also those in which it is far from the skin, the test is of doubtful value. Finally, I would say that all these remarks refer only to cases where the foreign body is a needle, or a needle fragment, and they do not refer to cases where ordinary fragments of steel or iron are imbedded in the tissues. I have not yet had sufficient experience with such cases as to enable me to generalize.

As already stated, a powerful electro-magnet is to be preferred for purposes of magnetizing the buried needle; but, as such an apparatus is not often available, a large steel horse-shoe magnet will probably answer all requirements.

Though a galvanometer is presumably the most sensitive indicator as to the position of the buried needle, nevertheless, for practical purposes, a very small compass, or a piece of fine sewing needle suspended by a delicate silk thread will probably be found sufficiently sensitive.

Unless other considerations contraindicate, the incision had best be made in such manner as to open up the tissues near one, or both, ends of the buried needle. Of course no instruments

of steel or iron should be near, when the test is being applied.

I wish to thank Prof. D. T. Cumstock of the Massachusetts Institute of Technology for a number of valuable suggestions concerning the use of magnetism for the above purposes.

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## Original Articles.

### POLLEN THERAPY IN HAY FEVER.\*

BY J. L. GOODALE, M.D., BOSTON.

WITHIN a few years numerous reports have appeared in regard to the treatment of hay fever patients by the subcutaneous injection of pollen extracts. The writers, among whom may be mentioned Freeman, Noon, Cook, Clowes, Koesle, Manning, Oppenheimer and Gottlieb, have uniformly reported that a certain number of patients so treated have received more or less complete relief from the disease.

The object of the following paper is to report the results of observation based upon 123 cases of hay fever examined during the past 12 months with reference to determining if possible the value of this treatment, and also to ascertain what biological relations, if any, exist between the pollen of different plants.

In the first place, a word should be said in regard to the method of obtaining and preserving the pollen extracts. For many plants, which furnish an abundance of easily detached pollen, it is sufficient to gather the partly opened flowers, bring them into a room without currents of air, and in the course of a few days, the pollen may be shaken upon smooth paper. This applies particularly to those plants the cross fertilization of which is effected through the agency of air currents, such as many forest trees and grasses, and certain Compositae, particularly ragweed. In the entomophilous plants, where the cross fertilization is largely effected by the agency of insects, the freshly opened anthers may be clipped and gathered. The pollen is then either placed in the solution for extraction, or it may be preserved dry for an in-

definite period. I have taken pollen from specimens in my herbarium gathered 25 to 30 years ago, of grasses and of ragweed, which on the addition of water excites as marked a skin reaction as would be the case with freshly prepared extract.

The extract is obtained from the pollen by soaking in water for a few hours. I have not found it necessary to subject the material to trituration, as advised by some writers, and this is also theoretically unnecessary since the pollen grains in water promptly undergo a swelling, with solution of their albuminous contents. Several observers have complained of the difficulty of preserving the extract, and say that it is liable to deterioration on standing. After a number of tests, an alcohol dilution of 13 to 15% by volume seems to meet the requirements, and material prepared in this way a year ago has apparently lost little of its efficiency. It is interesting to observe in this connection that we have an example of a natural plant juice, namely wine, in which preservation of its qualities is thus secured. The heavier natural wines contain a considerable amount of albuminous matter, together with approximately 14% alcohol. More than this percentage checks the further development of the yeast plant, and this amount, while preventing decomposition, does not seem sufficient to cause a precipitation of the proteids of the wine.

It is desirable to keep the solution in amber bottles.

A word of caution should be said in regard to the gathering of flower heads for the preparation of pollen extract in the case of those plants which may contain a poisonous substance, as occurs in certain Compositae, especially the wormwood group. I have observed a few cases where disturbing symptoms of nausea and malaise followed the injection of such material to a greater extent than would be accounted for by the actual amount of pollen present. In the case, however, of such plants as the Rosaceae and grasses, these precautions are unnecessary and we may in the case of the latter, find it more convenient to strip off the flower heads or anthers by hand.

When the pollen has been gathered, and a suitable extract obtained, the latter constitutes then the stock solution from which varying dilutions are prepared. It is theoretically desirable to prepare the stock-solution with a definite percentage of pollen-extract, but with present laboratory methods this is difficult, and, moreover, it is not absolutely essential, since individuals differ very widely in their degrees of sensitization, and each case must be examined by different dilutions, to determine the correct strength which it is safe to use for the patient.

As has been described by other writers, and by a previous publication of mine, the tests are made by making a series of superficial scratches on the skin of the arm, and gently rubbing in a drop of the pollen extract to be tested into a scratch. After five to 15 minutes the positive re-

\* Read before the American Laryngological Association, June 2, 1915, at Niagara Falls, Canada.

actions are indicated by varying degrees of local disturbance. These disturbances of the skin may be ranged in order of intensity as follows: In some cases the first perceptible alteration consists in a sharply circumscribed white area, not elevated, bordering the scratch for a distance of  $\frac{1}{16}$  to  $\frac{1}{8}$  of an inch. We may find in other individuals the first manifestation to consist of a slightly reddened raised area. In more pronounced disturbances the area of swelling is more extensive, and is more or less white in color, being surrounded by an area of reddening of varying size. When this degree of disturbance appears, it is usually accompanied by itching. It may, in marked cases, attain a considerable size, the edematous area reaching one inch or more in diameter and surrounded by half an inch or more of hyperemia.

The intensity of the skin reaction does not always seem to be proportionate to the clinical symptoms of hay fever. I have seen numerous severe cases where the skin reaction was much less than in other individuals who apparently suffered from a milder form of the disease. In the case of children the skin disturbances are relatively less pronounced than in the case of adults, and I have observed several under ten years of age, with apparently well-defined hay fever, who showed no reaction to the prevailing pollens borne in the air at the special season.

Examination of my cases by this method shows that the hay fever season in eastern North America may be divided into four periods as follows: The first period coincides with the flowering of the earliest blooming plants, the second with the flowering of the grasses, the third with the midseason flowers of July, and the fourth with the opening of the autumn blooming Compositae.

Of the first period 13 patients were observed who gave positive reactions to one or more of the following plants:

Coltsfoot (*Tussilago*)  
Dandelion (*Taraxacum*)  
White maple (*Acer dasycarpum*)  
Willow (*Salix nigra*)  
Alder (*Alnus incana*)  
Birch, white, yellow and black (*Betula papyrifera*, *lutea*, and *lenta*)  
Hawthorne (*Crataegus* sp.)  
Apple (*Pyrus malus* and *floribunda*)  
Lilac (*Syringa* var.)  
Oak (*Quercus rubra*)  
Tulip  
Lily of the Valley.

The symptoms which these early bloomers exhibit are relatively mild and depend chiefly upon the abundance of the plants in the vicinity of the patients. For many individuals the annoyance is so slight as to be perhaps not worth treating. In others a residence surrounded by maples or oaks, or with an orchard close at hand, may cause considerable discomfort. The most severe cases of this season which I have seen were

from maple and oak. If there is only one sensitization, the period of disturbance is brief and disappears with the drying or shedding of the flowers in question.

The second period represented by 36 cases, is ushered in with the flowering of the grasses. Owing to their abundance and the range of the blooming period of the different species, it is relatively severe and prolonged. Coincident with their flowering we may find an associated disturbance from many garden flowers, but for the majority of individuals, these latter are of minor importance. It is probable that if these June cases can be rendered immune to grasses, the other causes will be borne without much trouble.

The third period, represented by 10 cases, has been shown by my observations to be due in great measure to the mid-season Compositae, such as field daisy, hawkweed, yarrow, etc. With these are ~~many~~ species reported by patients which are still to be studied, such as chestnut, phlox, mountain laurel and numerous other plants of restricted distribution.

The fourth period with 77 cases begins with the general flowering of the ragweed, goldenrod, asters and the late Compositae and lasts until frost. My examination of the fields and roadsides at this season shows that the common plants other than the Compositae are relatively innocuous, and may be disregarded. Such are in the vicinity of Boston, the wild carrot (*Daucus carota*), pigweed (*chenopodium*), hardhack (*Spirea tomentosa*) and other representatives of these families.

From the foregoing observations it is evident that in this vicinity the chief causes of hay fever are the grasses and late Compositae. The early and midseason forms are briefer and less severe.

The possibility has been suggested that sensitization to proteids may arise through some parenteral entrance of the albumen in question into the body, and that hay fever, for instance, may originate from the contact of a given pollen with a scratch or abrasion of the skin. If this should be the case, it would certainly lay the method of testing by skin reaction open to serious objection, as we should thereby run the risk of exposing the individual to numerous sensitizations. I have gone over this point carefully with many patients testing them repeatedly with pollens to which they were originally negative, and have not, in any case, discovered the subsequent development of a sensitization.

#### METHOD OF TREATMENT.

The pollen extract is injected subcutaneously, and not into the muscles, as pain or stiffness may follow in the latter case.

The dosage is determined in the following way: After the special exciting pollen has been ascertained by the skin test, a second series of scratches is made at a distance from the first, and different dilutions of the pollen extract in

question are applied. It is important not to have this test applied in the vicinity of the skin which has been reddened by the first tests, as an increased excitability of this region is present, and even a simple scratch will cause localized swelling. The dilutions may be most conveniently made by adding a certain amount of the stock solution to alcohol of the same strength, and a 25%, 10%, 1% and even weaker dilution of the original extract are applied to the second series of scratches. The initial dose is determined by the dilution which fails to excite a definite skin reaction, and for the sake of causing as little smarting from the alcohol as possible, the quantity of material injected should not exceed five or ten drops. I should also recommend postponing the injection of even a small amount until after the reaction from the first skin tests have subsided, since a considerable amount of absorption from these probably takes place, and the introduction of an additional amount has seemed to me in a few cases to cause systemic disturbance. The injections may be made at intervals of two days to a week, increasing by a few drops at first, and later by the adoption of stronger percentages of the stock solution. To avoid the risk of anaphylactic disturbance, I have advanced the strength at first slowly. After five or more injections have been given, the strength may be increased with greater rapidity. The disturbances occasioned by the injection of the pollen extract below the skin consist, when a sufficient strength has been attained, of a more or less well-defined lump, varying from the size of a bean to that of a pigeon's egg, accompanied by a sensation of moderate heat and itching. It is interesting to note that none of the patients have complained of these manifestations as representing more than a trivial degree of discomfort, and in no case has the disturbance been sufficient to cause the patient to interrupt treatment.

Two instances of distinct but harmless anaphylactic shock were observed, one occurring in August in a man who came in somewhat exhausted from the heat, who showed extremely marked skin reactions, and who received on the same occasion a small dose of ragweed pollen extract. About half an hour after the administration of the pollen extract, he was taken with faintness, nausea and vomiting, and had to be assisted home. The other case was that of a boy who received a dose of grass and Jandelion pollen insufficient to cause local skin reaction, but who, a few hours later, was taken with moderate prostration, nausea and vomiting. It has seemed to me consequently a wise precaution to make the initial dose approximately one-tenth of what the patient can theoretically receive with safety. After a number of injections have been given, it is practicable and safe to inject a strength which may cause distinct skin reaction, without exciting general disturbance.

Beyond the immediate anaphylactic shocks

above noted, I have seen in a few cases where ragweed pollen has been injected occasionally a more or less marked persistent general depression. Since using the pure pollen extract, such a condition has not occurred in my own practice, but it has been reported to me by patients treated by other physicians. It seems to me here to be a question whether there has been an injection of toxic material other than the pollen, or whether the dosage has been excessive.

#### RESULTS OF TREATMENT.

We have two methods of determining the effects that have been accomplished by the injection of pollen extracts, first, the behavior of the skin reactions; second, the patient's observations regarding his condition. The first phenomenon being objective in character should afford a more reliable guide as to what has been accomplished.

#### INFLUENCE OF TREATMENT UPON THE SKIN REACTIONS.

In those cases which it was possible to observe for a period of two weeks to several months, the skin reactions were carefully noted at regular intervals. Of these, 62 showed a distinct diminution in the size and intensity of the disturbances in the skin, two showed no appreciable change.

The time required for the diminution of the skin reaction varies within wide limits, dependent both upon the plant tested, and upon the individual himself. In the case of alder, willow and apple, I have sometimes obtained a marked reaction from the first application, but on repeating the application two days later, a diminution or total disappearance was noted. This sudden disappearance following the first scratch was noted also in a case of horse fever, which showed on one afternoon a very extensive swelling from the application of antitoxine to a scratch, but who on the following morning, tested with the same antitoxine, showed no reaction, and has shown none since. In the case of grasses, and even more in the case of ragweed, a slower disappearance of the reaction was noted. With ragweed and *Cosmos* particularly I have observed in some cases a persistence of the skin reaction, even after weekly injections carried on for a period of four to six months. In these more obstinate cases an increased tolerance, however, was noted in spite of the persistent swelling. This tolerance was shown by the disappearance of itching which the first injection had caused, and by the smaller amount of hyperemia surrounding the oedema.

Twenty-one cases of those whose reactions had diminished in the course of treatment were examined again after the lapse of two to six months. Of these 19 showed no return of the skin sensitiveness, and some of them showed a still further diminution. Three cases after the lapse of three months showed a distinct return toward their original degree of sensitization.



## INFLUENCE OF TREATMENT UPON HAY FEVER SYMPTOMS.

In describing the results which have followed the injection of pollen extracts, it has seemed to me desirable to separate those cases which have received treatment during the hay fever season from those which have been treated during the winter or out of season. I have done this for the reason that it is difficult during the course of an attack to draw accurate deductions from the statements of the patients themselves. We have in the first place to remember that seasons vary in the severity of hay fever symptoms, dependent upon the amount of rain, heat and cold. Furthermore, the individual's predisposition seems to vary, perhaps as the result of his physical state and habits at the season. Finally the element of suggestion may conceivably play a part. While I shall therefore report the summer cases with reference to the degree of relief obtained, I do not regard these figures as at all conclusive. On the other hand, observations carried out during the winter with references to changes in the intensity of the skin reaction may be considered a fairly reliable guide, if it be admitted that the strength of the solutions themselves has not undergone deterioration. This latter point is difficult to determine with absolute certainty. Nevertheless, my alcoholic solutions seem now, after a lapse of months, to effect in new cases nearly, if not quite, the same degree of skin reaction, which they occasioned in a fresh state.

At the date of writing, 123 cases have been observed, of which 74 have had more or less treatment, 49 have been seen but once, or are now beginning treatment. Of the cases which may have been considered to have had a sufficient amount of treatment to enable us to draw more or less definite conclusions, 32 were treated after the onset of the hay fever symptoms, and 47 were treated during the winter or early spring. Of those cases which were treated at the beginning of the hay fever season, 26 expressed themselves as having been more or less relieved, eight could not see material improvement. In estimating the results actually achieved by treatment during the season I believe that an accurate judgment would place the extent of the relief in a number of instances distinctly below that which the patients expressed. It is possible that the element of suggestion plays here a considerable part.

Furthermore, a certain number of these who believed themselves improved showed but slight diminution in the extent of the skin reaction. It has seemed to me that such cases probably represent too high a degree of sensitization to obtain material relief during the hay fever season, and that a longer period of treatment is required. On the other hand, several of these individuals who reported several months later, showed a marked diminution in their skin reaction, and it was possible then to undertake their treat-

ment, with the result of bringing about still further a diminution in the intensity of the skin disturbances. About one-fourth, however, of those treated during the season experienced after a certain number of injections, ranging from four to 12 in number, such striking diminution in their subjective sensations and in the skin reactions that it seemed difficult to ascribe the gain to anything else than the treatment, the improvement noted having occurred from one to three weeks before the disappearance of their type of hay fever in this vicinity.

## THE BIOLOGICAL RELATION BETWEEN DIFFERENT PLANT PROTEIDS OR POLLENS.

It is evident that in this work a knowledge of the biological relationships of the exciting plants would be of the greatest aid. If, for instance, we can say that the protein of two exciting plants is identical we shall need to inject the pollen of only one.

While we do not know clinically the relation of the different plant pollens, yet from a botanical standpoint, they have been studied by serological methods by a number of observers.

The methods employed were the precipitation reaction and the agglutination method. Extracts of the plant albumen were made, removing first, where present, fats, oils, acids, alkalis, starches, glycogens and sugar. Those extracts were then injected into rabbits, preferably into the abdominal skin. As a rule the interval between injections was from three to four days.<sup>1</sup>

With reference to the time required for immunization of the rabbits, no exact figures can be given. Sometimes a potent immune serum can be produced after three or four injections, but cases also occur where even after ten injections very little immunity had appeared—at times entirely failed to occur. Apparently the individuality of the animal is a factor. Uhlenhuth mentions that of ten rabbits injected with the same albumen, only one showed a potent immune serum. The test is done by removing a small amount of blood from the marginal vein of the rabbit's ear, adding a portion of the extract which was used for injection and centrifuging. If the serum is of high potency, a precipitate is shown. The animal is then separated from the others, not fed for 24 hours and then killed. The blood is received in sterile glasses from a carotid incision. The serum must be perfectly clear, and show no opalescence. Finally the serum must have no free antigen, that is, the animal must not be killed too early after the last injection. The serum, if absolutely sterile, is easily preserved in dark glasses and closed with sterile cotton.

**Precipitation Method:** Dilutions of the plant extract are made, beginning with 1 to 200 and ending with 1 to 50,000. To each of these dilutions

<sup>1</sup> Physiologische-systematische Untersuchungen über die Verwandtschaften der Angiospermen. Met und Gohlke, Cohn's Beiträge zur Biologie der Pflanzen, 1913.

a cubic centimeter of serum is given. After keeping in the thermostat for an hour at 37° centigrade in the more dilute preparations there is a precipitate which demonstrates the value of the serum. The procedure in the case of material related to the original one is analogous. A precipitate shows a relationship, the absence of precipitate indicates that relations of identity with the original albumen are not present.

**Agglutination Method:** Here one places in different glasses the same dilution of the extract according to the content of albumen, for instance, 1 to 200, and to these glasses different degrees of immune serum are added, 8-100 of a centimeter, 2-100 of a centimeter, 1-100 of a centimeter and 5-1000. These mixtures are then sensitized for two hours in the thermostat, and after the lapse of this time, 4-10 of a c.c. of fresh, active ox serum is added, whereupon in the case of related albumen coagulation occurs. This method has shown itself particularly adapted, provided we have a specially potent immune serum. In any serum, the two methods should be employed before important results are accepted.

It is desirable in these tests to bring the solution to the same content of albumen.

A large number of families have been already studied with regard to their position in the system. It has been shown that the development of the angiosperms extends from the Selaginellaceae over the pines towards the magnolias, that the yews divide laterally from the pines, while the Gnetaceae form another lateral branch of the conifers, and then the trunk runs from the barberries toward the roses and ends with the myrtles. The magnolias and barberries belong to the common stem of the roses and crucifers. The trunk must take a branch below the Ranunculaceae of which the ends are the crucifers and the roses. In phylogenetic respect the barberries are older than the buttercups. Likewise the pea family is closely related to the roses. The trunk then proceeds from the roses to the Crassulaceae and Saxifrage family and ends with the evening primrose and myrtles. The mignonette and Capparidaceae lie between the barberries and mustard family. Since the albumen of the mignonette and Capparidaceae reacts like the albumen of the poppies, it is pos-



(After Mox and Gohlke.)

sible that the branch of the stem between the magnolias and Capparidaceae takes place above the mignonettes. Poppies do not act reciprocally with the mustard. The mignonettes, however, stand close to the violets. The Teasle family, Dipsacaceae, which apparently resembles the Compositae, does not react with it, and we have here to do with an interesting case of convergence.

The accompanying diagram shows the mutual relationships of the families which have been studied by their serum reactions. Unfortunately the position of the grasses is not given in this diagram, as they belong to a separate trunk, namely the monocotyledons, but this fact renders it sufficiently evident that their albumen is wholly distinct from that of the dicotyledons. It has, however, been established that they are closely related in their reactions to the Liliaceae.

From the foregoing considerations it is evident that the families which chiefly concern us in this present connection, namely the Gramineae, the Compositae, the Rosaceae and certain families of trees, have no serobiological affinity with each other. Consequently an individual sensitized to one family alone would not react to the pollen of a distant group. Where two families are closely related as in the Rosaceae and Leguminosae, a positive reaction might be expected to both. The clinical evidence in this regard extends as yet only to the Gramineae and the Compositae. Clowes showed in 1913 that in individuals sensitized to both grasses and ragweed, immunization against the former conferred no immunity against the latter. Much consequently remains to be studied in this respect.

In the case of genera within a given family, a relationship of proteids has been shown to exist as already stated. We should therefore expect an individual suffering from ragweed sensitization to react positively also to goldenrod and to the other members of the Compositae. A case which reacts positively to beach grass would also react to June grass, red top, etc. A case reacting to roses would react to apples, cherries, Spirea, etc. We have, up to the present time, clinical confirmation of this view only in the case of grasses. Noon and Freeman showed that injection with one species of grass would also protect against other grasses studied. While they found the pollens identical, yet some grasses seemed to yield a more active extract than others, and in their later work used timothy grass by preference. My own study of the skin reactions in the case of grasses confirms this view, and, as I have previously reported, patients sensitized to one species react positively to others, although one may bloom in June and another *e. g.* beach grass, in August.

Sensitization to the Compositae represents for us in America the most important form of hay fever. This is sufficiently shown by the generally accepted opinion of the majority of sufferers, and is confirmed by my own statistics.

The question, however, has remained as yet unanswered whether among the Compositae themselves subdivisions exist of a serobiological nature. While we may admit a sufficiently definite affinity to cause positive precipitation or agglutination reactions among all its members, yet it is conceivable that the proteid of the Compositae may be still further differentiated in a manner corresponding to the different genera. Following the same hypothesis we may imagine an individual sensitized primarily to the golden rod proteid, who may show only in a relatively minor fashion sensitization to ragweed, with which he has perhaps never previously come in contact. He may consequently show marked reaction to the former and but slight reaction to the latter, yet in virtue of the underlying biological affinity of the two proteids immunization to the one may confer resistance also to the other.

During the year I have studied ten species of Compositae representing as many genera, in an effort to obtain light upon this subject. Two methods have been used, first the classification of patients with reference to their reactions or preponderance of intensity of their reactions to the pollen of these Compositae, second observation whether injection of one species of pollen would influence the skin reactions to other pollens.

#### 1. Classification of Reactions.

A summary of the relative frequency of the various sensitizations is as follows:

Ragweed, 82 positive cases, 24 negative.  
Golden Rod, 48 cases positive, 50 negative.  
Cosmos, 28 cases positive, 25 negative.  
Field Daisy, 28 cases positive, 37 negative.  
Hawkweed, 20 cases positive, 39 negative.  
Yarrow, 21 cases positive, 28 negative.  
English Daisy, 16 cases positive, 19 negative.  
Tansy, 11 cases positive, 20 negative.  
Coltsfoot, 5 cases positive, 2 negative.  
Dandelion, 6 cases positive, 1 negative.

The disparity between these figures immediately suggests the question whether the different test solutions contained proteids of different strength so that individuals with but slight sensitization did not react to certain weaker solutions, when they might have reacted to stronger ones. That this is not the case seems to be shown by the following table of 20 illustrative cases.

From this table it is evident that all manner of variations exist in the primary or preponderating sensitizations of individuals. I have been particularly struck by the difference in the grouping of reactions exhibited by patients coming to me from different localities. As yet sufficient data are not at hand to enable me to generalize in this respect, but experience so far has led me to expect a different display of reactions in a patient of my vicinity from that shown in a patient from western New York or from the middle West.

TABLE I.

CASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ragweed	4	3	3	4	4	0	3	3	3	4	4	4	1	3	1	2	3	4		
Golden Rod	1	2	3	0	3	0	2	3	4	2	1	3	0	1	1	0	0	1		
Cosmos	0	4	0	4	0	4	4	4	1	0	4	1	0	1	1	3	0	1		
Field Daisy	0	3	0	0	0	0	0	2	0	0	0	2	0	1	0	0	3	1		
Hawweed	0	3	0	0	0	0	0	2	1	1	3	1	3	0	1	0	0	1		
Yarrow	0	0	0	0	0	0	0	2	0	1	1	2	2	0	1	0	0	3	0	0
English daisy	2	3						2	1	1	1	1	1	1	3					
Tansy					0	0	0	0	2	1	2	4	0	0	0	0	0	0		
Cottaroot	4										4									
Pandelion	4	4													3	1				

The intensity of the skin reactions is shown by the numerals:

0=Negative; 1=Slight; 2=Moderate; 3=Considerable; 4=Marked.

## 2. Influence of Treatment upon Reactions of Related Pollens.

The second method of determining the relations existing between the proteids in the related genera of the Compositae, has been by the following method. A patient who shows sensitization to, for instance, ragweed and goldenrod, is injected in the usual manner with ragweed pollen and observations are made at intervals with reference to the golden rod reaction. In some of these cases so studied it has been evident that with the diminution in the intensity of the ragweed reaction, there is a diminution likewise in the golden rod reaction, which, however, follows at some distance behind it, until the ragweed reaction has nearly or quite disappeared, when there is a sudden drop in the golden rod reaction. My observations in regard to this point are as yet incomplete and demand further study before they can be regarded as conclusive. There seems, however, here a promising field for study, and the method is suggested for the consideration of investigators who are entering up on this work.

If these observations are confirmed, they will serve to indicate that there are slight differences between related genera and yet a fundamental relationship.

From the theoretic point of view it would follow that while we may be able to accomplish immunization to all members of a given family by the injection of pollen from one, yet more rapid results may possibly be attained by em-

ploying a mixture of these pollens to which the individual shows preëminent sensitization.

The question may possibly be raised whether the parenteral administration of plant proteids may cause harmful alterations in the organs of the body. Longcope has shown that nephritis may be set up in animals by the subcutaneous injection of egg white. No examinations have been undertaken, so far as I know, on hay fever patients, as to whether the injection of pollen extract has been followed by the occurrence of albumen in the urine. I have made no examination of my hay fever patients in this regard. A case of horse asthma which I have reported elsewhere, received for a period of several months weekly subcutaneous injections of horse serum, in doses which finally reached the amount of five drops at each injection. The urine in this case was examined before and after treatment with negative results.

## CONCLUSIONS.

Serobiological methods have shown the phylogenetic relationship of the different plant orders and families. The application of these discoveries to the treatment of hay fever by injection of plant proteids promises to assist in the selection of the specific material required for a given case.

Definite reactions are elicited in hay fever by the pollen of the exciting plants when brought into contact with an abrasion of the skin. The intensity of these skin manifestations may be sensibly diminished by the repeated parenteral administration of the proteids in question. Coincident with the diminution in the skin reactions, there seems to occur an increased tolerance of the exposed mucous membranes to the pollens of the plants employed. Pollen therapy in hay fever may be regarded at the present time as a promising method of treatment, but its value and the permanence of its results remain still to be definitely established.

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## LEPROSY AND ITS RELATION TO MASSACHUSETTS.\*

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LEPROSY is not of such importance as tuberculosis to Massachusetts, but, nevertheless, is a problem which confronts us and which needs consideration and action. It is a disease of which

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the great majority have a considerable dread,—a dread not based on experience or knowledge. The very fact that Massachusetts has been considered foremost in many public health problems would seem to indicate a thoughtful government and an intelligent population. In the matter of leprosy, however, we have lagged behind and the claim that we isolate our cases cannot excuse us from our attitude toward lepers or our neglect of them as patients. It is my endeavor, therefore, to interest you briefly in the problem as it relates to Massachusetts.

Leprosy is first and foremost a communicable disease and in isolating cases occurring in this state we are doing what is right and proper. New York's attitude in allowing them at large is not justified. Where we have been in error is, in not regarding leprosy as sufficiently interesting and important to warrant the better care and the proper study of our charges. In making ourselves more familiar with leprosy we shall be able to diagnose the cases earlier and when Massachusetts provides us with better facilities for treating and caring for these patients, we shall be able to attempt to prolong life either by making the course of the disease less destructive and serious or by curing the disease.

A year ago a case of leprosy with marked symptoms and lesions of the disease was reported and sent to Penikese. This patient had been treated by private physicians and been through the more important hospitals for a period of three years and was finally diagnosed at the Massachusetts General Hospital. He had been treated for diseases varying from catarrh to syphilis. He had what may be termed catarrh, but no bacteriological examination had been made of the secretion nor of the lesions which may be confused with syphilis. I am not criticizing the inability of the average physician to diagnose leprosy, but I do wish to indicate the possibility of patients who suffer from leprosy going the rounds of the hospitals and only being diagnosed when in a more or less advanced stage; or, if they realize their trouble, of returning to their own country or to the next state where they are free to spread the disease.

The attempt to teach physicians what the earliest lesions and symptoms are, is not my province tonight. But if it were, I would advise any who are so inclined to visit Penikese where we can give so-called dispensary instruction. Barely half a dozen visitors see Penikese during the course of a year, and half of these are from other states.

Just what are the earliest symptoms and lesions of leprosy, authorities are not agreed upon nor are the descriptions of the stages and forms of the disease uniformly and clearly defined. And much less do we know what the channels of infection are. The clinical phases of the disease have not been studied as carefully as the laboratory and experimental side of it. We can, however, distinguish, with little difficulty, cer-

tain manifestations which are typical of leprosy. Fever with or without a macular eruption, epistaxis, rhinitis or coryza, catarrh or other nasal symptoms, enlarged glands, areas of anesthesia, itching usually of the extremities, often variously described as biting, twitching or burning, ill defined pains, etc., macular areas, small nodules on the face are all described as early symptoms and lesions. A careful bacteriological examination of nasal secretions, which can be induced by pot. iodide, is advocated by a number of investigators. This is claimed also to cause the appearance of a typical febrile eruption and nodules in the skin which are not apparent on cursory examination. X-ray of the extremities is also claimed as a means of diagnosis of early cases; the lime salt absorption and resulting rarefaction of the terminal phalanges is the picture shown. The Wassermann reaction is positive in the majority of cases. Gland puncture and bacteriological examination of the smears is perhaps as definite a means of diagnosis as is advocated. And Marchoux, Couvy, Kitasato, Leboeuf and Jovelly, and others claim that by this method they have demonstrated the bacilli in persons who have been in close and intimate contact with patients and who had shown no signs of the disease.

It is impossible to expect the very early diagnosis of cases of leprosy here in Massachusetts. That can only be achieved in a circumscribed area like Hawaii, an endemic centre, where the Government inspectors are trained observers and where all suspects are detained pending further symptoms and examination. What we term early cases here, are cases where the patient has small but visible lesions and where the bacilli are readily procured from the secretion of the nose and nodules; these cases are generally in a sufficiently advanced stage to be a source of danger to the public. The results cannot be reckoned until such cases increase either among our immigrants or among the people with whom such patients have resided. If this is a logical conclusion, then in time there is no doubt that endemic centers will form, due to the increased number of infecting but non-diagnosed cases. This is brought out all the more when we consider that practically all the cases sent to Penikese have been discovered mostly by chance at the hospitals and then only when their symptoms and lesions are pronounced and of several years' duration. The following statement from Brinckerhoff and Moore's paper on the examination of nasal secretions among non-lepers at Hawaii is of interest, "One conclusion can be drawn from our results," they say, "which is of some public health importance. It is evident that no considerable number of individuals in institutions in Hawaii have, as the sole evidence of the disease, lesions in the nose which are discharging lepra bacilli. On the other hand we are inclined to lay great emphasis upon the finding, among the patients of the Free Dispensary, of a case which had a consider-

able number of lepra bacilli in the nasal secretion. We regard this case as of particular importance, because she had come to the dispensary a number of times and had, therefore, been under the passing notice of a physician who was familiar with leprosy and always on the lookout for cases of this disease. We regard such a case as a most dangerous one from a public health standpoint, and feel that the labor of examining smears from fifty odd nasal secretions was well repaid by the discovery of this case."

It is asked whether cyclic epidemics have occurred in Asia, Africa, Europe and South America; whether these epidemics have occurred in virgin fields and also whether the present endemic centers, more particularly those of Asia and Africa, are centers where the disease is less virulent and whether a certain amount of immunity has been established. The important point in all this is the establishing of new endemic centers—the possible spread from these endemic centers to other states and the possible increase in virulence of the disease in fields where the environment is suitable for the rapid spread of the disease. In proof of the possibility let me state a few facts based on what has occurred elsewhere. New endemic centers have been established in South America, South Africa, Nigeria and New Caledonia. In 1865 in New Caledonia the disease was introduced and in 1888 there were 4000 cases. In the West Indies the disease has doubled in the last twenty years. Marchoux, reporting on the increase of leprosy in France—and from his report there are approximately 300 lepers in Paris alone—is of the opinion that there is no great reason why the disease should not again become the scourge it was six or seven hundred years ago. In South Africa the disease is becoming a serious menace. In less than twenty years 223 fresh cases of leprosy among Europeans have been reported, and the government, realizing that every year the danger is increasing ten fold, is attempting the complete segregation of all cases, even those occurring among the native tribes. An observer in South America states that the disease there is more virulent than in other countries, that the period of incubation is shorter and that the disease is spreading rapidly. Although the Mexican government in 1910 sent circulars out to determine what means should be adopted to combat the scourge, nothing apparently has been done and Mexico has a very large number of cases. In parts of India and Europe this is also true. Hawaii is frequently quoted to bear out this statement. Leprosy was probably unknown there previous to 1848. In 40 years close to 5,000 cases were reported; the disease has reached its maximum incidence and hopes are entertained that leprosy will eventually disappear. In New Brunswick from 1815 to 1894 about 250 cases were reported and at present there are approximately 15 cases. The disease frequently decreases in one place and increases in another; there are apparent cyclic periods where the dis-

ease reaches its maximum incidence and then diminishes.

What are the facts regarding leprosy in the United States? Our imperfect system of registration and statistics prevents us from graphically or truthfully presenting tables showing figures that are of much importance. Leprosy is specifically reportable in 18 states. It is endemic in Louisiana and probably in Florida and California. A case occurring in Massachusetts in an American was undoubtedly contracted in Louisiana but under what conditions we do not know. In 1911 Rhode Island reported a case of leprosy in a school boy 15 years old. This case was diagnosed in Massachusetts. Another case which Montgomery reports was a man born in Massachusetts who had never left the country and who probably contracted the disease in the Chinese camp in Nevada. The South reported the first case, as far as accurate data are obtainable, in 1775. The disease must, however, have been known there and elsewhere in the United States previous to that. Massachusetts reported its first case one hundred years later. The United States Public Health Service reported 278 cases of leprosy in 1911 and of these only 72 were isolated and cared for by local authorities. Of this number 145 were born in the United States, 120 in foreign countries, and 13 were unknown. It was thought that 186 had contracted the disease here. But this by no means indicates the number of cases in this country. To show the fallacy of such reports, the next year, 1912, gave 146 as the number of lepers in the United States and showed leprosy to be in 17 states. Dyer in 1897 reported at the lepra conference that since 1800, 277 cases had occurred in Louisiana, and that in 1897, 113 cases were still on record. The following figures I have been able to procure regarding the number of lepers in the United States from personal communication with state authorities: In Louisiana there are 102 cases segregated, and on account of the lack of co-operation or lack of interest of physicians, full returns are not given. In the yearly report for 1914, received from their leper institution, this paragraph appears: "During those 20 years at no time has more than a comparatively small proportion of the lepers in Louisiana been confined in the institution." Of the 87 cases reported to be in the home the majority are males, but what is significant is that of this number 72 are white, and only 15 are colored. In California there are at present 33 cases cared for. Chinese and Mexicans are in the great majority, there being 12 Chinese and 10 Mexicans. Minnesota reports 11 cases, and of these several are Americans born in that state,—leprosy among the Norwegians who originally settled there having practically disappeared. New York reported five new cases during the single year 1914, three of them in public hospitals, a child who was cared for at its home and one an alien who was deported. The Department of Health has made no provision for the supervision, quar-

antine or control of leprosy. I personally know of one case in Pittsburgh, Penn., one in Rhode Island and of course the fourteen here. This together totals nine cases more than was reported by the Government and includes complete figures from only four states and incomplete figures from two others.

In the Panama Canal Zone the authorities have had more than 100 cases since 1906, and approximately half that number are being cared for at present.

In Massachusetts we have had approximately 50 cases, and we receive an average of two to three cases a year. The great majority are of foreign birth, and thus far Chinese, Portuguese and Russian subjects have predominated. All told, ten nationalities have been represented. A great many of the cases have been deported. Several of the Chinese have been born in this country and three, at least, of the total number of cases were Americans. An English patient from Trinidad came to this country in the hope of a cure, and was finally sent to Penikese. Others have developed the disease from 10 to 14 years after their arrival. In 1882 White reported the presence of two lepers who had escaped from Tracadia, one of whom he had under treatment. In regard to the Chinese cases the question naturally arises whether the disease was contracted in the Chinese quarters of San Francisco or other cities on the Pacific coast, or whether on their visits to their own country. Montgomery in 1894, reporting on leprosy in San Francisco, thought it a possibility that several of the cases among the Chinese were contracted in San Francisco; he gives, among other cases, two that were here 20 and 16 years respectively before showing any signs of the disease. It is seldom, indeed, possible to obtain any information from patients a great many years after they have been here, as to when or under what conditions they have been in contact with cases of leprosy. We simply have to assume that a given case, coming twenty or more years ago to this country from a country where the disease is more prevalent, contracted the disease there and not here in the United States. Cases are on record where the disease has developed forty years after a residence in a country where the disease was prevalent. Bibb gives a case of a man 70 years of age who lived for 60 years among lepers, on the greatest social and most intimate terms, and then contracted the disease. Abraham quotes the case of a sailor 67 years old who had been retired in England forty years and had shown symptoms for the last six years only. Hallopeau relates the case of a man in whom the disease appeared 32 years after he had stayed in a leprous country.

In 1905 Massachusetts began to segregate all cases of leprosy, considering it a communicable disease. Penikese Island was the spot selected for the isolation of our cases—an unfortunate selection on account of its situation, exposure

and barrenness. So far, some thirty cases have been cared for. In New York, as in many other states, the lepers are not segregated, and in New York leprosy is not considered communicable. This surprising point of view is incomprehensible. For this reason, if for no other, the Federal government should establish national leprosanaria and provide for the proper care and treatment of all cases of leprosy. Massachusetts bases its conviction that leprosy should be segregated on the opinion of the best minds of Europe, America, Asia and Africa. At the last Leprosy Conference, held in Bergen in 1910, the following resolutions were adopted:

1. The Second International Scientific Conference on Leprosy confirms in every respect the resolutions adopted by the First International Conference of Berlin in 1897. Leprosy is a disease which is contagious from person to person, whatever may be the method by which this contagion is effected. Every country, in whatever latitude it is situated, is within the range of possible infection by leprosy, and may, therefore, usefully undertake to protect itself.

2. In view of the success obtained in Germany, Iceland, Norway and Sweden, it is desirable that other countries should isolate lepers.

3. It is desirable that the children of lepers should be separated from their parents as soon as possible, and that they should remain under observation.

4. An examination should be made from time to time of those having lived with lepers, by a doctor having special knowledge. It is desirable that lepers should not engage in certain trades or occupations. All leper vagabonds and beggars should be strictly isolated.

Among general conclusions reached at this conference the following is instructive: "Every leper is a danger to his surroundings, the danger varying with the nature and extent of his relation therewith and also with the sanitary conditions under which he lives. Although among the lower classes every leper is especially dangerous to his family and fellow workers, cases of leprosy frequently appear in the higher social circles."

In 1909 the Franco-Danish Commission for the study of leprosy made the following few conclusions:—

- a. The conditions under which the leprosy bacillus grows and develops are unknown.

- b. The channel of invasion of the human body is unknown.

- c. Leprosy is a contagious disease.

- d. Heredity in leprosy has not been proved.

- e. A positive cure for leprosy is not known.

There are certain difficulties in presenting the subject of the contagiousness of leprosy in this community. The fear of the disease is almost without parallel, and any presentation of proofs may have the danger of further increasing this fear. The opinion of the contagiousness of lep-

rosy is not based on the oft misquoted case of Father Damien at Hawaii. It would be unnecessary because a hundred better examples of direct contagion can be cited both in Americans and Europeans. But the opinion today is that leprosy is communicable only upon close and intimate contact with cases that are sufficiently advanced to discharge live virulent bacilli from fresh lesions, and this danger is enhanced when the skin or mucous surface is injured and direct inoculation takes place. Statements from British and Colonial delegates in 1910 were also significant: "The danger of infection from leprous persons is greater where there is discharge from mucous membranes or from ulcerated surfaces."

Laws of resistance and immunity play probably as important a part in this disease as in others. Hansen, commenting on the Norwegian lepers that settled in the west and the gradual disappearance of the disease there, said that one of the first things immigrants learn in America is to keep their persons and their homes clean. In his opinion, cleanliness about the house and person is in most cases sufficient precaution to prevent the spread of leprosy. Since then this opinion has had to be modified. It is true that the disease is more prevalent among peoples who live in primitive and unhygienic conditions, but this by no means covers the whole problem. In hygienic centres the disease is practically absent; when the standards of living improve the disease tends to diminish. It should be said that the spread of the disease is brought about more readily by lack of hygienic conditions in addition to personal contact. Bayon suggests the following questions in seeking facts as to the contagiousness of leprosy: "The much greater incidence of leprosy in males than females. The universal spread of the disease under the most varied climatic conditions and the definitely greater proportion of infected children of leper mothers."

The action of Massachusetts in regard to segregation is abundantly justified. United States delegates to international conventions urged segregation, but so far without success. This occurrence of new endemic centres in the last fifty years should alone influence us. For what logical reasons should we believe that we are exempt from similar dangers? The disease undoubtedly has increased in the United States. In 1910 at the Bergen Conference, Ravogli, who attended the congress from America, made the statement that up to then (1910) no cases of leprosy had occurred among the soldiers who had returned after serving in the colonies, and he consequently did not think the contagiousness of leprosy was serious. Had Ravogli kept in mind the long incubation period of leprosy and the history of the disease in other countries he would have hesitated before making this statement. Several cases are given in literature of American sailors who had contracted the disease

outside the United States, and Hyde as early as 1878 gives a case contracted probably in Honolulu in 1863 or 1864. In looking over the Public Health Reports, for one year, from August, 1913, to June, 1914, I have been able to collect three cases among soldiers who had served in Cuba or in the Philippines.

I am not prophesying whether or not leprosy will increase in Massachusetts, but since much has been said of the dangers regarding the possible increase of tropical diseases here. I should like to add these four points for your consideration:—

1. Leprosy is exceedingly prevalent in Mexico, Brazil and Latin-America in general.
2. Boston is building up a South American trade and booming Boston as a port of entry.
3. The Panama Canal gives a more direct route to countries where the disease is endemic.
4. The unfamiliarity of our local authorities with leprosy.

I am, therefore, inclined to believe that Massachusetts is not free from the increase of leprosy. Russia believes that because she has acted as a sieve for the East in past generations, the disease is so prevalent there today. Germany claims she gets her cases from Russia, France from her colonies and her southern neighbors, Hawaii and other islands from China and Japan. In America we have a few states where the disease is prevalent, and a few others where the disease is endemic. What should the attitude of Massachusetts be, then?

First and foremost, a more tolerant and sensible attitude towards these unfortunates. A greater familiarity with the disease. A more sympathetic and true interest on the part of the state in their cases and a less complete isolation. To provide a modern hospital and modern buildings for the proper care and treatment of leprosy. In treatment much can be done, and reports of arrested cases are frequently made. The prevention of disfigurement, toxic febrile attacks, pain and general discomfort is successful in a great many cases. It is by no means so hopeless as was imagined some years ago. The closer clinical study of all cases reveals much that can be done for these people, but as far as our cases are concerned, very little more in the line of treatment can be attempted unless the state provides the institution with proper facilities. Dyer, in 1903, speaking from a sanitary standpoint, stated that "no institution pretending to care for lepers should be without the fullest equipment for bathing facilities. Water in leprosy is as potent in its prophylaxis as it is for remedial use." We have for two years studied the disease clinically and bacteriologically and we feel assured that there are many possibilities for treating our cases, but without equipment, without facilities to carry out our ideas, the work that has been done will prove to be without practical applicability. In the third place, the closer affiliation between university



and institution, so as to obtain the greatest good and stimulate interest in the problems which confront all state institutions is desirable, and lastly, federal control of immigration, which White recommended as early as 1894, with the establishment of at least two national leprosaria.

## THE RELATION OF LEPROSY TO THE COMMUNITY.\*

By GEORGE M. KATSAINOS, M.D., BOSTON.

ANYONE should hesitate, after hearing the splendid results of Dr. Honeij's research to touch the same subject before so well informed hearers. But since I had already expressed the desire to speak on the same subject, I will say a few words with the hope that a discussion from another point of view might help as to a better understanding of this very important problem. After all, leprosy is the most peculiar disease after syphilis. In examining the "relation of leprosy, or rather of the leper to the community," we must have three questions in mind: (1) Is leprosy a contagious disease? (2) What is the manner of its transmission? (3) Is it a curable disease?

In answering these questions we must take into account not only contemporary evidence, but also such evidence as we may gather from the past. The earliest reference to lepers seems to be the well-known passage of Leviticus, beginning with chapter thirteen, and following. It seems, however, that what is called leprosy in these chapters is a combination of psoriasis and vitiligo, and of other skin diseases. The purification and care of the leper and the leper's acceptance after the necessary purificatory sacrifice into the Jewish community seem to point to any other than the real and accepted disease that we call leprosy. We are also tempted to believe that the medieval world under the influence of ignorance and superstition which continued even after the times of Columbus, confused many other diseases with leprosy, and when syphilis invaded Europe it mistook it for leprosy, especially when mutilation resulted from syphilis, and they considered and treated syphilitics as lepers. Hieronymus Fracastorius, the first who gave the name of syphilis to the disease known until then as morbus Gallicus, in the well known poem, who is justly thought of as the "Homer" of syphilis, as late as 1530 refers to leprosy along with syphilis, mistaking evidently syphilitic ulcerations for "hideous or horrible leprosy." This confusion renders evidence coming from the distant past suspicious. It would be best, therefore, for our purposes to limit our premises to facts lying nearer our own observations.

Since I happen to be a Greek, born in a coun-

try which unfortunately has not yet been able to get rid of this terrible disease and where sufferers of this kind are numbered in many hundreds, I might justly base my discussion on facts that I have observed there.

As I said, lepers were always to be found in Greece. But within one generation after the War of Independence in 1821, the disease took such an alarming development throughout the country and especially in Peloponnese, that there was near almost every city and village, a segregated district for lepers, where all sufferers, without distinction of sex, age, or rank, were isolated by force. According to my belief this spread was due to the invasion of the Egyptian army which, under Ibrahim Pasha, landed in Peloponnese in 1825, and for almost four years wrought great destruction from end to end of that country, transmitting at the same time the seed of this disease, which is one of the greatest pests of Egypt. My native village of Lagadia, in the centre of Peloponnese in the mountainous district of Gortynia, had before the revolution a population of about 1500. After the passing of the Egyptian this number was reduced to one-third. Before the invasion there was not one case of leprosy, but after it a large part of this pitilessly decimated population was infected. The village is situated on a mountain side and is surrounded with running brooks and steep rocks, into which many caves are hollowed. These caves during the fearful years of foreign yoke, served often as places of refuge for people fleeing the tyrant's bayonet and torch. These caves were almost filled with lepers soon after the invasion. What is true of my village is also true of most of the cities and villages of Peloponnese.

Nowadays there is not a single case of leprosy in my village, although the population has reached ten times the number of the inhabitants left after the revolution. Throughout the province, with the exception of the village Valtesiniko, where sporadic cases are still to be found, the evil has been exterminated. In all Peloponnese one seldom meets a leper, except in districts along the seashore.

But although in Continental Greece the disease is reduced to insignificance, on the islands it is met not infrequently. According to statistics made by Dr. G. Photinos, professor of dermatology at the University of Athens, and director of the Hospital (for skin and venereal diseases) of Andreas Sygros, on all the islands there are more than one thousand lepers. In the lepers' asylum in Spinalonga of Crete there are 230 patients; in another asylum on the island of Cyprus there are 250.

But the cloaca of Greek leprotic filth is Athens, a city filled with sufferers of this kind. Since persons infected with this disease are driven out from every village or city in Greece, abandoned by relatives and friends, and excluded by all communities, they mostly find

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their way to Athens, some seeking cure and others working to earn their living. There, these victims of a most hideous disease, find at last a place where they are not persecuted, and there they live their hopeless lives among the other inhabitants, either begging, selling shoestrings, and such trifles, playing hand-organs, or engaged in any other light work out of which they may earn some means to prolong their horrible days which they spend in neglect, filth, pain, contempt, and despair, wishing for an early death, and yet clinging to life desperately.

On the other hand, a leper in Athens who belongs to a prosperous family, or who by his own work can earn a large income does not feel the despair of the above-described outcasts. On the contrary, he takes his meals in the same restaurant and at the same table as any healthy person; not infrequently he drinks from a common glass; he constantly has his hair cut or shaves in the public barber shops; and he sometimes sleeps on the same bed with a healthy individual. Furthermore, his clothes are washed in the public laundry, or by a private laundress who makes no discrimination among her patrons. He rides in public carriages; he deals openly in the public market; he attends services in the same church with the rest of the people, and, on election day, he presses through the crowd or voters to cast his ballot.

In sharp contrast with the attitude of the Athenian public toward the lepers, is the inhuman way in which they are treated elsewhere in Greece. As soon as the disease manifests itself, and not only the doctors themselves but also the peasants become aware of its presence, the sufferer, whether willing or unwilling, must leave his village and home and must spend the rest of his life alone in some deserted place. His relatives, if he is fortunate to have such, or sympathizing passersby leave, always at a distance from the leper's hole, the necessary food, on which he barely lives. A kind of strange isolation, that results not from a written law, but from a commonly felt necessity due to custom, providence, and above all to social and religious tradition. The Mosaic law laid down in Leviticus is followed to the letter: "All the days wherein the plague shall be in him he shall be defiled; he is unclean; he shall dwell alone; without the camp shall his habitation be." Lev. 13:46.

I have known a shepherdess isolated on a desolate spot on one of the sides of a terrible ravine, in the midst of red oaks, prickly palms, and ash trees. Her husband carried her food to her in weekly rations consisting of simple bread and of a small quantity of some other foodstuff. The poor woman died in her solitude and remained there, unburied for about a month until some people ventured to cover with a little earth what was left by the jackals and wolves which had devoured most of the miserable remains of the body.

Another man, a native of my village, who had

emigrated to Patras, was attacked by the disease while there. He hastened to return to his home, but he had to spend the remaining two years of his life in a cave opening at the foot of a precipice near a spring of water, condemned and neglected by all except his sister, who, poor though she was, divided her food with him, carrying his part daily up to a distance of 200 metres from the cave.

Such heroes of woe could justly repeat the immortal Sophoclean words of the mythical King Philoctetes, who, abandoned for years on the island of Lemnos, speaks thus of his suffering to Neoptolemos (Soph. Phil. 530):—

"I believe that no one beside myself could not only suffer but even behold these agonies. But I have been foretaught by necessity to resign to pains."

Thus for two years the faithful sister shared her meals with her abandoned brother. One day, after bringing the daily food to the usual place, she greeted her brother across the ravine, but no answer came from the cave. Casting away all fear, she climbed up to the polluted hollow, and there she found her brother dead. Her pleas for a religious burial were unheeded by both clergymen and laymen. Despairing at the end she took axe and spade in her hand, and like the faithful Antigone of old, she buried alone her unfortunate brother. Such is the life and end of all lepers who cling to the vicinity of their homes as long as breath is left in them.

But the scientific Greek world hypnotized, one could say, by the theories and teachings of Zampacoe, the well-known great student of leprosy in the East, does no more believe in the contagiousness of the disease. They accept it as a congenital and hereditary disease, even as the most hereditary of diseases after syphilis. To this rule I make an exception, I believe, with my fellow countrymen that leprosy is inherited, and that the microbe exists in the spermatozoa and ova in the time of the conception. On the other hand, I do not deny that contagiousness is also possible, for otherwise I could not explain the existence and development of the disease in certain times and places. Nevertheless transmission by contagion is only a rare exception, taking place in a way that escapes our detection. It is certain that it can result only from a protracted intercourse, combined with many other conditions, such as time, place, and, above all, predisposition of the organism for the admission, cultivation and development of Hansen's microbe. As proofs against opponents of the hereditary theory, I shall lay before you some of the cases which seem to admit no doubt.

The brother of my grandfather on my mother's side, John Mpakrisioris, marries the daughter of a leper. The brother of his wife also is a leper, but her mother is in perfect health. Eight years after the marriage Mpakrisioris' wife, too, shows the same symptoms. She is segregated with the other lepers and dies, leaving behind

her husband and three children, two boys and one girl. The father marries again soon after the death of his first wife, and from his second marriage three other girls are born and brought up together with the two boys and one girl of his first marriage. They sleep on the same bed with the other children, they use the same domestic utensils, they are taken care of by the same mother. The two boys of the first marriage at their twelfth year emigrate to Patras to earn their living. Twenty whole years after their emigration, they become lepers and die from the disease. The third child, too, of the first marriage is a leper at the twelfth year, is isolated and dies in a few years. Even after the manifestation of the disease, one of her playmates, a girl cousin of hers, who was to be my mother, continued to steal to the cave of her lost companion day or night, and play with her, eat with her, and sleep with her for some time. Mpakrioris and his second wife die in old age utterly unmolested by the disease that thrived about them. All the girls of the second marriage lived free from the contagion.

There is another relative of mine who marries a girl of a leper family. A child is born. The mother soon is a leper. After her death the husband marries again, and five more children are born, who live in constant contact with the child of the first marriage. This child twenty-five years after the death of his mother, is attacked by the disease that had taken away his mother. But the father, the second wife and all the children from the second marriage remained unmolested.

Charalambos Marinopoulos has three children from his first marriage. When his first wife dies he marries again, a woman of leprotic descent, who bears no children but lives with her husband and the three children of the first marriage for many years. At last, seven years after her marriage, she dies from leprosy, whereas her husband and the children remain entirely unmolested.

Andreas Kapsis, father of three children and a neighbor of mine, succumbs to the disease when about forty years of age, leaving behind three children, two boys and one girl. The boys had left their home ten whole years before the manifestation of the first symptoms in their father. About fifteen years after their father's death, they, too, become lepers and as such return home. The mother, disregarding all danger, prefers to be isolated with her boys and to take care of them to the moment of their death. Yet neither she nor her daughter was affected and they both live at the present day in good health. The mother is about ninety now.

The brother of this Andreas Kapsis dies, likewise a leper, and leaves six children. Of those children only two had died from this disease; the other four and the mother have remained pure.

Tracing Andreas Kapsis and his brother to their origin, we find they are the children of a

leper and that thus their family tree has its roots in the disease sown by the seed of the Arabian invaders who had come to Peloponnese at the time of the revolution. Most of the members of this family die either of leprosy or of tuberculosis. Even the present generation, in spite of the mixture resulting from intermarriage with Greeks, shows most clearly the racial characteristics of their Arabian ancestors, from whom they have had this terrible disease as their only inheritance. All four children of one member of this family die of consumption. The only child of his brother succumbs to the same disease, the father himself dying of anaesthetic leprosy. The two children of the third brother die likewise of consumption. The same disease carries away the fourth brother.

What I have said about this family is also true of three other families of the same village whose members thus fall from Scylla to Charybdis, dying either from leprosy or by consumption. Are we to accept that leprosy prepares the ground for consumptive tendencies? At least these examples tend to confirm such a theory.

The cases that I have in hand corroborating my statements would much exceed the limits of time. From all these, however, the following facts are observed:—

1. No case of transmission of leprosy from the husband to the wife or from the wife to the husband is found.
2. No case of contagion between neighbors, however close their relations with a leper may have been.
3. No person related to a leper by any marriage ties, but not of the same blood, has been affected.
4. Even when a child is the suckling of a leper woman it remains unmolested, if not born of her.

After all, the Hebraic curse may have a scientific basis: "The leprosy therefore of Naaman shall cleave unto thee, and unto thy seed forever." II Kings 5.

But just as any field is not good for any kind of seed, so every country is not appropriate for the development of leprosy. Thus the United States, in spite of the fact that not a few lepers have found refuge in this country, refuses to yield ground to the disease.

It is well known that Norway is a most fertile field. Yet when Hansen himself came to the United States and made thorough investigations in all places where Norwegians have settled, tracing especially families sprung from a leprotic root, he found no victims here. (Crocker's Diseases of the Skin.)

Is not this a reason to believe that America is not a land favoring the development of leprosy?

It is also indisputable that places by the seashore are more suited for the spread and permanence of the disease than inland districts. Thus, to come back to Greece, although leprosy invaded

first the central part of Peloponnese as a truly Pharaonic plague in its most horrible form, and worked havoc for some time, its fading away has been equally rapid. Against all that we might expect from a curse of this kind, a disease not only chronic, but of a sudden appearance and seizing on so many victims at the same time in a place inhabited by a poor and above all, by an uneducated class of people, against all that we might expect from such a disease under such conditions, we find that within a period little longer than half a century the evil has been almost entirely exterminated.

In contrast with these fine results in inland places, we find that in spite of a more systematic and a more persistent prosecution, leprosy still thrives on the coast and on the islands, especially in Crete. And yet on this island a leper's home has been established since 1897 at Spinalonga and drastic measures are taken to segregate in this home every leper of the island as soon as the first symptoms of the disease appear. In Cyprus, too, after the English occupation (1878) another lepers' home has been established and severe measures have been taken against the evil. Yet there are 250 lepers in Cyprus and 230 in Crete.

These facts lead me to the conclusion that the proximity of sea water and fish food may be potent factors for the permanence of the disease.

Athens, on the other hand, is an inimical place to it; for, in spite of so many lepers who, driven out from every other part of Greece, find a refuge here and live undisturbed among other inhabitants, no case of contagion is reported, and no leper has been born.

With regard to the therapy of the disease, the best means afforded thus far is salvarsan, which I have seen extensively applied and which I have used often myself.

There is in Athens a very good hospital, named after its founder "Andreas Sygros," which has been established since 1905, and has since become a "pool of Siloam" for lepers, and is a unique institution in the whole world for the scientific study of leprosy. I had the good fortune to be connected with this hospital from August, 1913, to July, 1914, and to make a thorough observation of the splendid work conducted by Dr. George Photeinos, a young professor of dermatology at the University of Athens.

The lepers are not admitted as bed patients in this hospital, but they find here a place where they are well received, moulded, directed, and encouraged, and above all, where they are subjected to a splendid treatment without the least expense on their part, because the institution is well supported by the Greek government. Here one can see the disease in all its phases and stages, in sufferers of every sex and age, and within a period of six months can have a good idea of the disease itself, and of the method of treatment, as well as of the results of the salvarsan therapy.

But Dr. Photeinos has extended his sphere of action beyond this institution. In company with his assistants, Dr. Michaelides and Tsamaloucas, he went to Crete, in order to make a careful study of the various forms of the disease, supplied by the 230 patients of the Spinalonga lepers' asylum. He likewise provided himself with all things necessary for the Wassermann reaction, and applied this method in a temporary clinic established by himself. Combining all the material provided through these various sources, he has come to the following conclusions:—

1. In cases of tubercular leprosy the Wassermann reaction is positive on 76%.
2. In case of nervous leprosy its positiveness is 38%.
3. In case of mixed leprosy its positiveness is 75%.
4. This reaction seldom and with great difficulty changes from positive to negative, and this happens only after numerous injections—not less than 8—of salvarsan or of neosalvarsan. But since the patients do not return regularly to the hospital, exact statistics of the change and of the duration of negativeness cannot be given.
5. The curative action of salvarsan on lepers is not encouraging and is far from being considered radical. The nodules of tubercular leprosy often fade away, but to obtain such results 10-15 intravenous weekly injections of full doses of salvarsan are necessary.

The effects of the treatment in their best form I have had the opportunity to witness myself on a man coming from Cythera. He had come with tubercles as large as almonds covering his face, his back, his breast and abdomen, with a distinctly leprotic appearance. He was subjected to no other treatment except to ten intravenous injections of salvarsan. Last June, that is six months after the treatment, he came back with body cleared of every tubercle, in good condition and better spirits. No one looking on the face of this man could suspect that he was still a leper, a fact proved by discolorations of the skin of the breast and abdomen. These were sometimes as large as a silver dollar and always without sensation. The Wassermann reaction on him was still positive.

Most of the lepers treated, owing to their destitute condition and ignorance, do not persist in the treatment long enough to make the basis of accurate statistics. The difficulty is more heightened by the fact that the use of salvarsan does not extend as yet over a sufficiently long period.

Each leper entering the Hospital of Andreas Sygros is carefully examined about his past and about his family history. This examination always proves that leprosy is congenital. It is surprising to witness the capacity of the personnel of this hospital, consisting of Dr. Photeinos, Dr. Evangelou, Dr. Petropoulos and Dr. Tsamaloucas, in diagnosing the disease at first sight. The latter especially is known in his circle as the Laconian Dog of Lepers. In the diagnosis, sight.



touch and smell are applied, for it is known that a leper has a particular and characteristic smell which cannot be mistaken by a man who is trained in this line. In this hospital lepers are not segregated from patients of other diseases. On the contrary they are allowed to come in contact with each other, and they talk about their trouble to any person with no shrinking or restraint. By all leprosy is regarded as any other common disease. No particular care is taken, and when the syphilitic is treated the leper is laid down on the same table, and vice versa.

The women, who are more sensitive than the men, paint their eyebrows when the hair has fallen. Peasant women, who wear a kind of scarf over their heads, lower this a little over their forehead to hide their disfigurement.

In closing, I wish to express the hope that the Greek government may continue to take good measures and to apply them earnestly and thoroughly in behalf of the several hundreds of its leprous citizens and to the safety and honor of Greek society and state.

### Book Reviews.

*Pathological Technique, Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods.* By F. B. MALLORY, M.D., Associate Professor of Pathology, Harvard Medical School; and J. H. WRIGHT, M.D., Pathologist to the Massachusetts General Hospital. Sixth Edition, illustrated. Philadelphia and London: W. B. Saunders Company. 1915.

The new edition remains in appearance like its predecessors. It contains, however, a number of additions not of extreme importance, although as is customary with the authors of this work, these methods are of proved usefulness: for instance, Bielschowsky's silver impregnation method for nerve fibrils, Bensley's technic for cell granules and mitochondria, Herxheimer's rapid method for staining fat, and the various new methods of importance in the diagnosis of syphilis and demonstration of the treponema pallidum.

There are a number of new and very excellent photomicrographs.

A discussion of this well known authoritative and standard work would be superfluous. No pathological laboratory in school or hospital is without it. The fact that the book is kept up to date by its authors is sufficient recommendation for such a popular and constantly praised work.

*House Flies and How They Spread Disease.* By C. G. HEWITT, D.Sc., Dominion Entomologist,

Ottawa, Canada. Cambridge, England: University Press. 1912.

This belated volume in the series of Cambridge manuals of science and literature, presents at a seasonable time of year a brief popular study of the house fly as a disseminator of infection.

It may be regarded as a preliminary sketch for the author's larger technical work on "The House Fly," reviewed in the issue of the JOURNAL for June 10, 1915. Unlike the latter work, however, and the other larger volume by Howard, the present manual aims chiefly at such description of the fly and its life habits as shall be of value in the education of the intelligent public to the importance of this ectoparasite and of its extensive destruction. It is well illustrated with 19 figures in the text and concludes with an excellent brief bibliography on the subject.

*The Elements of Military Hygiene.* By P. M. ASHBURN, Major Medical Corps, U. S. A., Second edition. Boston and New York: Houghton Mifflin & Co.

This monograph on military hygiene was originally written and especially arranged for officers and men of the line, with the purpose of informing and interesting them in matters of camp sanitation, that they might cooperate more effectively with the medical staff. During the six years which have elapsed since its first appearance, the science of military hygiene has made noteworthy progress and its advances are incorporated in this second edition. Much of the text has been revised and rewritten and a supplementary chapter has been added on the prevention of mental and nervous diseases. The volume should continue its usefulness not only to rankers but to medical officers especially in the volunteer service and the militia.

*The Diagnosis and Treatment of Tropical Diseases.* By E. R. STIRR, A.B., Ph.G., M.D. Philadelphia: P. Blakiston's Son and Company. 1914.

This clinical manual by a medical director in the United States Navy is a valuable brief textbook in an important branch of medicine which has rather recently become conspicuous in the professional field. It is divided into two parts, the first dealing with a description of tropical diseases and their treatment, with special emphasis on epidemiology and prophylaxis; the second with the diagnostics of tropical diseases, their clinical side being presented from the standpoint of signs and symptoms which are connected with anatomic or clinical groupings rather than with the individual disease. The work is well illustrated with 86 text figures and should prove an extremely valuable practical manual, especially for field work in the tropics.

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## WHOOPIING-COUGH.

WHOOPIING-COUGH is apt to be looked upon by those who have not inquired into the matter as a not very serious affection, but when one finds that it annually destroys the lives of no less than ten thousand American children it assumes an entirely different aspect. While it is usually less fatal than scarlet fever or measles, in some seasons the mortality from it is as great as from either of these affections. Like them, it is often attended by grave complications and sequelae and not infrequently, even when there may have been no complications, so reduces the vital resistance as to leave the patient an easy prey to any chance infection or other source of disease. Pertussis is especially dangerous for infants, and ordinarily in infants and young children the mortality from it is quite as high as that from scarlet fever.

As a result, however, of the isolation, in 1906, of the Bordet-Gengou bacillus, which is now recognized by the greater number of authorities as

the causative agent of the disease, it would seem that a new era in its prophylaxis and management is opening before us. Thirty years ago Goodhart (*Guide to the Diseases of Children*, 1885) remarked: "The remedies now in vogue for the second stage are in no sense specifics; they control the violence of the paroxysms, but have no destructive action upon the supposed germ which causes them. But if the disease be due to a germ, and the behavior of the disease is certainly in favor of this view, then it is to be hoped that a specific will one day be found, and obviously any drug exhibited with such an object must be applicable at any time during the life of the germ." The discovery of the specific bacillus has naturally been of service in increasing our general knowledge of whooping-cough. Thus, if this etiology be conceded, it is found that, as in the case of scarlet fever, the period of infectiousness has been overestimated. In a paper published in the *New York Medical Journal* for May 22, Dr. Paul Luttinger of the research laboratory of the New York City Health Department states that the Bordet-Gengou bacillus is most often met with in the sputum in the catarrhal stage and rarely later than the first week of the paroxysmal stage, and this fact has been confirmed by various other observers.

In the early part of last year the pediatricists of New York, profoundly impressed with the extent of the ravages of the disease, and believing that by systematic effort a distinct improvement in the situation could be effected, made an urgent appeal to the health department to take the matter up and devote its most serious attention to it. The department promptly assented to this request, and a survey conducted by the bureau of infectious diseases disclosed that among the chief reasons for the continued prevalence of whooping-cough were the following: Ignorance of the general public regarding the menace of this disease, insufficient attention, on the part of physicians and parents, to the isolation of the patient during the early period of the disease, lack of suitable dispensaries for patients ill with the disease, and neglect, in a large proportion of cases, to notify the health authorities. A special clinic for whooping-cough was then established in connection with the research laboratory, and this afforded an opportunity to follow up the patients in their homes. A large number of additional cases, which had not reached the notice of the health department, were thus discovered, and, in short, it was found that only about one-

quarter of the cases of whooping-cough occurring had been reported. It was realized, however, that physicians were not very largely responsible for this poor showing, inasmuch as it was not usually customary among these people to call in a physician for this disease. For some time past all cases of the disease reported by dispensaries, as well as all cases known not to be under the care of a private physician, have been kept under supervision by the district nurses of the bureau of infectious diseases; the nurses leaving cards of instruction and charging the family to keep the child quarantined for one week from the day on which the whoop appears. A week after the first appearance of the whoop permission may be given for the child to leave the premises, provided it is accompanied by an older person who will see that it does not play with other children, enter other homes, attend places of amusement or ride on street cars.

In the paper referred to, Luttinger gives a report of the results met with at the whooping-cough clinic from its opening in August to the end of the year 1914. In the treatment, drugs were employed in some of the cases and stock vaccines prepared from the specific bacillus in others, while in some instances both were given, and it is stated that these vaccines seem to have shortened the duration and severity of the paroxysmal stage; the average duration of the whoop being twenty-five days, as against forty days in those treated with drugs. To be successful it was found that the vaccine must be given in large doses. At first an initial dose of fifty million was given, but later this was increased to 250 million. In a small series of cases the vaccine was used successfully as a prophylactic, and in the prophylactic cases three large injections were given at three-day intervals; the first dose being 500 million, the second one billion, and the third two billion. It seems to have been the general experience that specific vaccines are of greater efficacy in prophylaxis than in the actual treatment of whooping-cough, but it is not to be expected that from any vaccine results can be obtained equal to those from a serum like diphtheria antitoxin. It would seem probable, from the experience at this clinic, that in some at least of the instances in which the vaccine was without beneficial effect, the reason for the failure has been the insufficiency of the doses employed.

At the conclusion of the report the belief is expressed that further experiments, with the view of obtaining more effective vaccines, and a

closer coöperation of the profession in public health education, will help largely in the eradication of this scourge of childhood. As the studies progressed the necessity of more whooping-cough clinics, and of a pertussis hospital, became more and more apparent. Information just received is to the effect that the good results previously noted at the whooping-cough clinic in New York from the use of pertussis vaccine have continued unabated to the present time; in fact, they have been even better since certain modifications have been made in the preparation of the vaccine. Dr. Luttinger writes: "The applicants for treatment recommended by private physicians and institutions are so numerous (as many as eighty on a single afternoon recently) that we are fast outgrowing our present quarters and our appropriation. Regarding prophylaxis, while none of the vaccinated contracted the disease, we cannot be absolutely sure of the protective value of the vaccine until we have an opportunity to compare vaccinated and unvaccinated cases during some circumscribed outbreak of the disease in an institution." It may be remembered that about a year and a half ago Dr. A. F. Hess of New York reported that in such an outbreak in an infant asylum, while the vaccine treatment did not appear to be of curative value, it proved of considerable prophylactic value. Of the 400 children in the institution, 244 had the vaccine administered to them prophylactically—in every instance before there was any sign of an attack—and of these, 20 developed the disease.

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### TUBERCULOSIS.

THE eleventh annual meeting of the National Association for the Prevention and Control of Tuberculosis was held on June 14, 15 and 16 in Seattle, Wash., and was attended by about 400 delegates from all parts of the United States. At the evening session on June 14 the principal address was presented by Dr. Edward O. Otis of Boston on "The Child and the Community;" another by Sherman G. Kingsley of Chicago on "The Importance of Ventilation in Schools;" and a third by Dr. Enrico Castelli of New York presenting the results of his experimental work in the medical school of Genoa, Italy.

On June 15 Dr. George M. Kober of Washington, D. C., president of the Association, in his

annual address called attention to the steadily diminishing ravages of tuberculosis throughout the United States.

"Tuberculosis in all its forms carried off during the year 1913 a total of 143,000 victims in the United States, which signifies the presence of approximately 1,430,000 consumptives with an economic loss of at least \$214,500,000. Great and grave as the problem may appear, there is certainly hope when we consider that the death rate from this disease has been reduced from 326 per 100,000 population in 1880 to 146.6 in 1913, which means that if the former rate had been continued the number of deaths from this cause would have been 322,027 instead of 143,000 in 1913, equivalent to a saving of 179,027 during one year."

At the conclusion of his address Dr. Kober presented the following recommendations for immediate action on the part of the Association:

"1. In view of the fact that from six to seven per cent. of the samples of the average market milk contain bovine tubercle bacilli, let us urge, by education and otherwise, that all milk, unless derived from tuberculin-tested animals, be pasteurized or scalded.

"2. Since the mortality from tuberculosis among inmates of unsanitary homes is often double and treble that of the general population, it is our duty to see that the building regulations are so modified as to prohibit the renting of houses unfit for human habitation.

"3. Because of the fact that nearly one-half of the 143,000 deaths from tuberculosis in 1913 occurred among the industrial workers, who constitute about one-third of the population, we should strongly urge the enactment and enforcement of laws for the removal of dust and fumes, the foes of industrial life."

With regard to the infection of children by bovine tuberculosis it may be noted that the British Royal Commission on tuberculosis has recently reported that not only are infants and children especially endangered by this form of infection, but that adults may also be directly infected with the bovine type of the disease. The Imperial German Commission on tuberculosis has also recently reported that of 84 children examined by them, 21, or 25%, had derived their infection from bovine sources.

Drs. Park and Krumweide of the New York City Health Department estimate that at least 300 children die every year in New York City from tuberculosis. Dr. Hess of the same city found that of 107 samples of raw milk obtained from as many different dealers, 16% of them could produce tuberculosis since they contained living tubercle germs. Dr. Churchill of Chicago reports that the records of surgical tuberculosis

for the year 1913 at the Children's Memorial Hospital showed that there were 64 operations on bone and joint tuberculosis, the kind that most often has been found to come from bovine sources. Dr. Brown of Saranac Lake considers that 8% of all cases of tuberculosis are of bovine origin. The Chicago Health Department reported that for the year 1910 the total number of milk samples examined showed 8.9% to contain tubercle bacilli. These were all in the raw milk samples, as the pasteurized milk showed none.

In the conclusion of his address Dr. Kober also advocated the following special measures to be undertaken for the prevention of tuberculosis by states and municipalities:

"1. Compulsory notification of cases to the health authorities as soon as the disease is recognized. The health authorities should also resort to disinfection of the home and personal effects, especially upon the death of the patient or vacation of the premises.

"2. The enactment and encouragement of laws against expectoration, coughing into the faces of persons, and the common use of individual drinking cups are called for. Provisions should be made for individual drinking cups or fountains, and for suitable spittoons and their disinfection in all public buildings. The public should not cultivate an exaggerated fear, but has a right to insist upon clean and decent precaution.

"3. The sanitary condition of hotels, lodging houses, theatres, churches, schools, ambulances and passenger service should be under the control of the health department, and house cleaning should be accomplished as far as practicable by the vacuum system.

"4. Marriage with a tuberculous person should not only be discouraged, but prohibited by law. A tuberculous mother should not nurse or kiss her infant, and in the selection of a wet nurse a certificate of health should be demanded.

"5. Isolation of tuberculous patients should be insisted upon in hospitals, asylums and public institutions. In private life, the patient should occupy at least a separate bed, use separate eating and drinking utensils, and neither receive nor give kisses. Careless and unteachable cases should be cared for in hospitals."

In his annual report as secretary of the association, Dr. Charles J. Hatfield stated that in spite of the universal financial depression the



year has been favorable for the work of the organization.

"Field secretaries have operated in more than 20 different states; over 100,000 churches have coöperated in the Tuberculosis Day movement, and the Red Cross Christmas Seal campaign has resulted in an increase of 15% over the previous year. The total number of stamps disposed of at the last sale was 53,000,000, netting practically \$530,000 for the tuberculosis movement. The membership of the National Association now numbers more than 2,400, including those most actively interested in the anti-tuberculosis work scattered throughout the United States and in almost every country of Europe and Asia, and even down in South Africa and Australia."

The National Association for the Study and Prevention of Tuberculosis has issued a statement warning consumptives not in adequate circumstances against traveling in the West and Southwest in search of health. They state that from 40% to 90% of all deaths from tuberculosis in the West and Southwest are of natives of other states who have migrated there, many of them hopelessly incurable and without sufficient funds to support them. They call attention to the fact that tuberculosis can be cured in any part of the United States, and it is far better for a consumptive of moderate means, such as the average working man, to go to a sanatorium near at home, than to go West and live in a more favorable climate without proper food or medical care.

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### LEPROSY.

IN another column of this issue of the JOURNAL we publish two articles on leprosy presented at a recent meeting of the Suffolk District Medical Society; one, by Dr. Honeij, deals particularly with local conditions in Massachusetts in relation to the prophylaxis and care of the disease; the other, by Dr. Katsainos, presents a historic review of leprosy particularly in Greece, with emphasis upon what the author regards as evidence of its hereditary nature. It is interesting in this connection to note the action which has recently been taken in Russia with regard to the permission of marriage among lepers. The Russian Medical Council, according to a statement in the *Lancet* of June 19, has expressed its opinion that

the hereditary factor in leprosy is trivial in importance, even in marriage between cousins, both of whom are, at the time, lepers. Moreover in such cases the birth rate is exceedingly low, which still further reduces the likelihood of such transmission. The *Lancet* expresses itself editorially as essentially in accord with the opinion of the Russian Medical Council.

"There can be little doubt that the best way of isolating lepers in affected countries is to intern them, under proper medical supervision, in special colonies or settlements where they can, as far as is practicable, lead active and useful lives, engaged in farming and other suitable occupations. Leper asylums and such institutions are best reserved for cases of old and advanced disease where incapacity for employment has been brought about by the ravages of the malady. In the leper colonies or settlements patients of both sexes have to be isolated, and we would raise no objection under certain conditions to the union of these persons if they desired to marry. Young leprous adults of both sexes are more likely to become more hopeful, contented with their lot, if they have a home of their own and a family life, even of a limited extent. The fertility of leper marriages is not great, and as the leprosy advances impotence usually develops. It is imperative, however, that arrangements should be made in advance, and the reasons carefully explained beforehand to the leprous parents, to remove at once any newly born infant from the custody of its mother to a distant home provided by the authorities where the child may grow up without danger of acquiring the infection from its maternal parent. Leprosy is not believed to be a hereditary disease, but close and intimate contact, such as that between a mother and child, is regarded as affording the surest means of conveying the infection from one person to another. We freely admit that the parting of the leprous mother from her newly born child would be painful to her, but in the interests of the child such parting is absolutely necessary and should be regarded as inevitable by both parents. The lot of the leper is admittedly a hard one, and whatever can be done, consistent with medical knowledge and science, should be done in order to alleviate as far as possible the hardships of these unhappy sufferers. With the indicated reservations, we agree with the Russian Medical Council in their view that the marriage of one leprous person with another is, under certain circumstances, permissible."

With regard to the treatment of leprosy, attention may be called to the biannual report of the Hawaiian board of health for the period ending in June, 1912, in which the medical superintendent of the leper colony at Molokai, gives an account of the various remedies there used,

the methods of their application, and the results secured. For a decade warm sulphur baths have been a routine hygienic method at the settlement, and while not specifically curative of leprosy, are grateful to the patient, cleansing, and ameliorative of the systemic as well as the local effects of the disease.

After reviewing the number of patients treated for intercurrent diseases, Dr. Goodhue, the medical superintendent, continues:—

"General surgical cases have had the usual attention at bi-weekly surgical clinics, and considerable work has been done in the surgery of special organs, principally as observed in the nose and throat. A system of anatomical charts for purely leprosy cases has been instituted in which lesions peculiar to the disease are marked to code diagram, the key to which is indexed for ready reference. Annotations are added where deemed necessary for further amplification.

"Approximately 75% of the inmates at the Leper Settlement are receiving special treatment for leprosy, and a number of patients now receiving tonic and nutritive remedies, are also taking specific treatment."

"Chaulmoogra oil is the most popular remedy. Strychnine in graduated doses, or elixir of iron, quinin and strychnine, according to preference. Both are decidedly ameliorative.

"Anti-leprol is a refined product of chaulmoogra oil, and is tolerated much better by the stomach.

Of the newer remedies employed, Dr. Goodhue mentions thoradin paste and ointment and anti-leprol. He believes the latter superior to chaulmoogra oil for the following reasons:—

"First. It is a purified product of chaulmoogra oil, and as such can be taken without gastric irritability.

"Second. Dosage may be increased to the maximum more rapidly and without impairing the appetite and consequently digestion and assimilation, as occurs so frequently with the ingestion of chaulmoogra oil.

"Third. Very much larger doses may be taken, so that the disease comes under the influence of treatment more quickly.

"Fourth. The oil is uniform, does not thicken and form a resinous deposit.

"Fifth. Easy to dispense, as it requires no previous treating to effect solution.

"Anti-leprol has not become so popular here as chaulmoogra oil treatment for the reason that the latter has acquired a wonderful prestige, but a number of patients who are unable to retain chaulmoogra oil, have had no difficulty in taking large doses of anti-leprol, and are thus prevented from becoming discouraged and refusing all treatment."

Finally Dr. Goodhue describes the use of serum and anti-toxin emulsion. The serum is ob-

tained by the application of sinapias, aseptic withdrawal of the fluid, precipitation of possible bacilli by centrifuging, and injection of the sterilized supernatant liquid. At first the serum was given diluted with normal salt solution; later it was given pure without ill effects. The purpose of its use is the hope of increasing bacteriolytic activity. The following objections to its use have been noted.

"First. It will not keep well unless on ice.

"Second. General dislike of most Hawaiians to injections.

"Third. It is difficult to obtain a regular supply to be depended upon. The anti-toxin emulsion consists of carefully selected non-neurotic, excised lepromata, which are thoroughly cooked, desiccated in hot-air sterilizing oven, pulverized and made into a definite emulsion with glycerin, and given *per os*.

"Improvement consists in greatly lessened digital flexion and inter-osseous atrophy as well as general body-tone.

"From clinical observation I believe that an excess of sodium chloride or any other article of diet preserved through the medium of this drug greatly favors leprosy bacillary activity and proliferation. Certainly it is true that foods which disturb the alkaline balance and increase the reaction in the circulating and other fluids of the body, largely neutralize the ameliorative action of chaulmoogra oil in leprosy."

## HAY FEVER.

In another column of this issue of the JOURNAL we publish an important original article by Dr. Joseph L. Goodale of Boston on the pollen therapy of hay fever, a subject on which he has made individual research of great value, and upon which he has presented previous communications. Dr. Goodale divides the hay fever season into four periods: First, that of the early flowering plants, chiefly trees and shrubs, of April and May; second, that of the flowering grasses in May and June; third, that of the mid-season flowers of July and August, chiefly Compositae; and fourth, that of the late Compositae of August until frost. This paper, then, representing research recently completed, is in season for the aid of the profession in the treatment of hay fever during the third and fourth periods this year.

Dr. Goodale goes at length into the technic of collecting the pollen of various plants, preparing the extracts, employing these extracts in the di-

agnostic tests and in the treatment of the condition. He also discusses the question of anaphylaxis in relation to this method of treatment. Perhaps most interesting of all is his discussion of the biologic relation between the different plant proteids in the production of the disease. It is in this field that Dr. Goodale's most valuable and original work upon this subject has been done. He presents in an interesting diagram the phylogenetic relationship of the different plant orders and families and suggests the far-reaching possibilities of the application of the knowledge of this relationship to the treatment of hay fever by injection of pollen extracts. Dr. Goodale has been particularly qualified for the successful performance of this important piece of medical research, since to it he has brought not only his professional skill but his special knowledge as an expert botanist.

### CANCER.

THE attention of the profession is called to the fact that the next issue of the JOURNAL will be published as a special Cancer Number. It will contain a series of special original articles by well known authors on various topics connected with the hygienic, clinical and surgical problems presented by cancer. This publication is in conformity with a plan originated by the Philadelphia State Medical Society whereby 73 American medical periodicals, during the current month, will issue editions devoted to this subject. The importance of this intensive movement on the part of the medical press is of considerable moment, since it marks a definite and generalized effort to emphasize to the medical profession and the intelligent public the seriousness of cancer and the urgent desirability of its prompt diagnosis and treatment and its prevention by early prophylaxis.

### MEDICAL NOTES.

**MEASLES STILL PREVALENT IN NEW YORK.**—There were 1277 deaths and a death rate of 11.47 per thousand of the population reported during the past week as against 1258 deaths and a rate of 11.75 in the corresponding week in 1914, an increase in the absolute number of deaths of 19 and a decrease in the rate of .28 of a point, which is equivalent to a relative decrease of 31 deaths.

The only noteworthy feature of the week's mortality was the increase in the deaths from

measles and broncho-pneumonia, both causes being intimately associated one with the other.

Viewed from the point of age grouping the mortality of children under one year of age was considerably higher than the corresponding week in 1914, there being an increase of 49 deaths reported. The mortality of the other age groups was slightly below that of the previous year.

The death rate for the first twenty-six weeks of 1915 was 14.21 per one thousand against the rate of 14.79 during the corresponding period of 1914, a decrease of .58 of a point.

**NATIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS.**—The sixth annual report of the New York State Committee for the Prevention of Blindness covers the period from Nov. 1, 1913, to January 1, 1915, and records the history of its six years of work and present affiliation. On Jan. 1, 1915, it was consolidated with the American Association for the Conservation of Vision, making of the two organizations one national body, to be known as the National Committee for the Prevention of Blindness. An income of \$15,000 has been provided to meet the expenses of the new national organization for the first year of its work. This organization is the natural outgrowth of the two committees above mentioned. The National Committee for the Prevention of Blindness, organized by the Russell Sage Foundation on April 27, 1908, was established to extend the work among laymen, instituted by the American Medical Association in its committee on ophthalmia neonatorum. The objects of this committee as defined were: "to ascertain the direct causes of preventable blindness, and to take such measures, in cooperation with the medical profession, as might lead to the elimination of such causes"; and this was to be done through investigation, education, publicity, legislation, and cooperation. As its work increased and its membership grew it was reorganized as an independent state organization, known as the New York State Committee for the Prevention of Blindness. Early in its history it became the recipient of requests from various states throughout the union for material in the work of the prevention of blindness, which work it could not, as a state organization, adequately take up. In December, 1910, there was organized a national association, called the American Association for the Conservation of Vision, which, owing to various causes, became inactive within a few months. A plan to consolidate the two committees was brought to the attention of the Rockefeller and Russell Sage Foundations, who gave assurance of some financial support, and arrangements were completed Jan. 1, 1915. Mr. Edward N. VanCleve, president of the Ohio State Commission for the Blind and superintendent of the Ohio State School for the Blind, is managing director of the committee. The committee proposes during the present year to continue its

study of the occurrence and results of ophthalmia neonatorum; to assist in securing the enforcement of the law requiring this disease to be reported early; to secure provisions whereby reported cases may be adequately and promptly treated; to extend educational work as to the methods of prevention and cure of this disease; to support or initiate legislation which shall provide for the standardization of midwife schools by the State Department of Education; and to continue its study of unnecessary blindness and visual impairment resulting from wood alcohol, trachoma and other infections, industrial accidents and inadequate lighting; and to take such measures as lie in its power to aid in eliminating such causes.

**A NEW PUBLICATION.**—The publication of a new journal, the *Hospital News* is announced. Its editors-in-chief are Wilfred M. Barton, M.D., and Walter A. Wells, M.D., and its associate editors are Tom A. Williams, M.D., Francis R. Hagner, M.D., W. P. Carr, M.D., James A. Gannon, M.D., Robert Scott Lamb, M.D., C. Augustus Simpson, M.D., S. B. Muncester, M.D., Prentiss Willson, M.D., Thomas A. Lowe, M.D., John O. Skinner, M.D., Harry S. Lewis, M.D., Philip W. Newton, M.D., Kiev, Russia.

**ST. LAWRENCE STATE HOSPITAL.**—The annual report of the St. Lawrence State Hospital, Ogdensburg, N. Y., for the year ending Sept. 30, 1914, states that 2460 patients were treated during the year. The number of patients discharged recovered was 117 and 82 others were sufficiently improved to justify their return to their homes and former occupations; 30 others, who had shown no improvement but whose mental condition had become stationary, were discharged to the custody of friends. The voluntary patients admitted during the year numbered 38—27 men and 11 women. There were in all 75 voluntary cases under treatment. Of the patients admitted during the year 49.5% were subsequently returned to their homes benefited by treatment. The entering class of the nurses' training school numbered 39 and the graduating class numbered 9. The number of pupils in the training school at the end of the year was 65.

**AMERICAN SOCIAL HYGIENE ASSOCIATION PRIZE.**—In the issue of the *JOURNAL* for April 29, 1915, we published an account of the offer of a prize of \$1000 by the American Social Hygiene Association, to be awarded to the author of the best original pamphlet on social hygiene for adolescents between the ages of twelve and sixteen. The committee of judges for this prize has just been announced and includes the following physicians: Luther H. Gulick, M.D., president, The Camp Fire Girls, New York, formerly director of physical training in the New York City Public Schools; Milton J. Rosenau, M.D., professor of preventive medicine and hygiene, Harvard

Medical School, Boston; and Victor C. Vaughan, M.D., president of the American Medical Association, dean, Department of Medicine and Surgery, University of Michigan.

**DECREASE OF FOOT AND MOUTH DISEASE.**—Report from Washington, D.C., states that on June 28 an extensive relaxation of the federal quarantine against foot and mouth disease became effective. Interstate movements of livestock were resumed between "restricted area" and points in "free" and "closed" area for immediate slaughter. Shipments for any purpose have been permitted to all points except those in "closed" area. In Illinois a large area, which, however, does not include the Union Stock Yards, was made free. All Indiana became free, including the belt stock yards at Indianapolis. In Ohio, the Union Stock Yards at Cincinnati and the Cleveland Union Stock Yards became restricted area to handle livestock for immediate slaughter only. The Pittsburgh Union Stock Yards are in the same classification. The hog and sheep divisions of the West Philadelphia Stock Yards became modified area. Stock yards at Milwaukee and Cudahy, Wis., passed to the restricted classification. Other changes affected Maryland, Montana, New Jersey, New York, Rhode Island, Virginia and West Virginia.

**AWARD OF THE KUSSMAUL MEDAL.**—It is announced that the Kussmaul medal and the prize from the Kussmaul endowment in surgery have been awarded by the faculty of the University of Heidelberg to Professor Braun of Zwickau.

**EUROPEAN WAR NOTES.**—On June 15 a unit of 32 surgeons and 75 trained nurses, organized at Chicago, sailed from New York aboard the steamer *Nieu Amsterdam* for Falmouth, England. This unit, which will form a part of the British Army Medical Corps, is in command of Dr. James M. Neff of Spokane, Washington, and Dr. George B. Davis of Chicago, both of whom have been commissioned lieutenant colonels. This Chicago unit will probably be assigned to a base hospital in France.

Report from New York on June 17 states that Dr. Kirby-Smith of Sewanee, Tenn., who has recently returned from Serbia, says that the typhus epidemic in that country is now well under control. At the time of his arrival in Belgrade there were 1500 cases of the disease in a single hospital with only four physicians in attendance, and the deaths averaged 35 or 40 a day. He estimates that there has been a total of nearly 20,000 deaths from the disease.

On June 16 it was announced by the Serbian general consulate of New York that an additional sum of \$5000 had been assigned by the committee of mercy to the Columbia University Relief Expedition. This, with \$10,000 already raised and gifts from other sources, makes a total of \$22,500 available for this expedition, which will soon sail on the steamship *Thessaloniki*.



An enthusiastic contemporary in the daily press, in an editorial describing with praise the work of Americans in the relief of the distressed peoples of Europe, refers particularly to Dr. Richard Pearson Strong, "who, it seems, has gripped the Serbian typhus plague with a firm and steady hand, and is snatching order out of chaos and cheering a whole nation with one foot in the grave." The mixture of this metaphor, which somehow reminds one of the horrible examples in books on rhetoric, must surely be pardoned for the sake of the sincerity of its intended commendation.

Report from London on June 28 states that Dr. W. J. Maloney of New York, who has been serving as a surgeon with the allied forces of the Dardanelles expedition, has been seriously wounded and is now lying in hospital at Alexandria, Egypt.

On June 29 Dr. Henry L. Davis of Lynn, Mass., sailed from New York for England to join the British Red Cross in the field.

**THE MEDICAL LIBRARY ASSOCIATION.**—The Medical Library Association, consisting of a membership of 52 libraries and 46 individuals, has completed 18 years of its existence and proved the worth of its object,—to foster medical libraries and the maintenance of a system for the exchange of medical literature among them. In other words, it has formed a clearing house through which books, journals and reprints, or lists of them, may be sent from one library to another. Lists of material for exchange are sent mostly to members of the Association, this method having been found more useful than the system of quarterly bulletins issued formerly. By careful use of funds the treasurer's report for the past year showed a substantial balance with which it is planned to extend still further the work of the Association. Lieut.-Col. C. C. McCulloch, Jr., of the library of the Surgeon-General's office, is president of the Association and Dr. John Ruhrah of Baltimore is secretary and treasurer.

**DECLINING SCOTTISH BIRTH RATE.**—The recently published annual report of the registrar general for Scotland shows that between the middle of 1912 and the middle of 1913 the total population of Scotland decreased 12,945. Moreover, there was a decrease of 32,732 between 1911 and 1913. During the year 1913 the total number of living births in Scotland was 120,516, which was 2274 less than the number for 1912 and 5230 less than the mean of the preceding five years.

"A striking fact was that the registered births of the year 1913 were less than those of all previous years since 1873; a maximum number of 133,525 births was registered in 1903, and compared with this the present year was 13,000 short. Fifty-one per cent. of the children registered were male and 49% female. The birth rate for the year was 25.49 per 1000 of the esti-

mated population. Legitimate children accounted for 92.91%, and the illegitimate for 7.09%; the number of the latter was less than in all years since 1903, and the illegitimate rate was less than those of all years since 1908. There were 1175 more marriages in 1913 than in 1912, and 296 more than the mean of the numbers of the preceding five years (1908-1912); in fact, it was the largest number of marriages registered in Scotland in any year since the introduction of national registration. The marriages thus reached their highest and the births their lowest level in 1913; this is a fact of great significance in its bearing upon the decreased productivity of the Scottish people. The deaths for 1913 numbered 73,069, or 729 more than in the previous year; the death-rate was 15.45 per 1000 of the estimated population."

These figures, it is to be remembered, concern a period which was in no way affected by the present European War, and, therefore, indicate in times of peace a tendency towards steady decrease in birth rate comparable with that observed in France, England and the United States. The effect which the war may have upon this decline in the future cannot now be definitely prognosticated since there are theoretic reasons for exactly opposite effects between which it is probably impossible now to judge, since the ultimate social, political and biologic effects of the war cannot be surely appreciated until after its close.

#### BOSTON AND NEW ENGLAND.

##### INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

—It had been planned by the Boston Instructive District Nursing Association to institute on June 28 a course of training for nurses in the care of tuberculous patients, but there were so few applicants that this proposed course has been postponed for the season.

##### HARVARD MEDICAL ALUMNI OFFICERS.

—The annual meeting of the Harvard Medical Alumni Association was held at Harvard Hall, Cambridge, on Commencement Day, June 24. Dr. Frederick C. Shattuck of Boston was elected president, Dr. James B. Ayer treasurer, and Dr. Arthur B. Emmons, 2d, secretary for the ensuing year.

The forty-fourth annual meeting and dinner of the Harvard Dental Alumni Association, held the same day at Young's Hotel, Boston, were attended by 216 members. The following officers were elected for the ensuing year: President, Harold deW. Cross, '96; secretary, Frank T. Taylor; treasurer, Charles T. Warner; executive committee, Frank T. Taylor, '90, William D. Squarebrigs, '98, Leroy M. S. Miner, '04.

**PLANS FOR THE BRADY LABORATORY.**—On June 27 it was announced at New Haven, Conn., that plans have been completed for the new Anthony

N. Brady laboratory, which is to be erected at an estimated cost of \$125,000, and the construction of which it is expected will be begun this summer.

"The building will be erected on the grounds of the New Haven Hospital, on land owned by the university, on which it is proposed to put up the new medical school buildings. It will be of brick and stone in the Georgian style, rectangular in shape, approximately 50 feet by 150. It will be arranged on a unit plan, the classrooms to consist of three or four units and the working rooms for the instructors and technicians one or two units. It will be constructed so that the partitions can be removed to alter the size of rooms.

The construction will be fireproof and the floors will be of concrete. Large windows have been provided for every room. By an ingenious arrangement of trenches and conduits the pipes for plumbing, compressed air, electrical lines, etc., can be gotten at in case of alteration without tearing up the building.

It will be a three-story building with basement and attic. The basement will contain students' lockers and toilet rooms, a storage museum for the department of pathology, a machine room, janitor's room, rooms for small animals and the columbarium. The first floor will contain the teaching room for pathology, the autopsy room, receiving room and the internes' working laboratory.

The second floor will contain a teaching room for instruction in clinical microscopy, working rooms for the staff of the departments of surgery and obstetrics, students' research rooms, etc. The third floor will contain working rooms for the other departments. In addition to the janitor's room in the attic there will be a roof garden for small animals that need to be kept in the open air."

**THE SECOND HARVARD SURGICAL UNIT.**—In the issue of the *JOURNAL* of June 17 we published the personnel of the second Harvard surgical unit, which finally left Boston on June 25 and on June 26 sailed from New York aboard the steamer *Noordam*, under command of Dr. Edward H. Nichols. This unit has been assigned to a base hospital at Woolwich, England, for the three months from July 1 to October 1, where it will be followed by similar units from Columbia and Johns Hopkins. All the surgeons will receive temporary commissions in the British army. After October 1 members of the unit may continue their work in France.

**BOSTON FLOATING HOSPITAL.**—The Boston Floating Hospital began the twenty-second season of its work by a trip down the harbor on Wednesday, June 30, and plans have been made to continue these trips daily throughout the current summer. The staff of the hospital is essentially the same as that of previous years and includes the following physicians:—

Dr. Henry I. Bowditch, chief physician in

charge of the staff; Dr. James Herbert Young, Dr. Edwin T. Wyman and Dr. John W. Hammond. The auxiliary staff includes the following: Dr. Dana W. Drury, otologist; Dr. James S. Stone, surgeon; Dr. Beth Vincent, assistant surgeon; Dr. James B. Ayer, mental diseases; Dr. Edwin H. Place, contagious diseases; Dr. Robert G. Loring, ophthalmologist; Dr. William T. Councilman, pathologist; Dr. John Henry Bufford, dermatologist; Dr. Frederic W. Howe, director food laboratory.

Dr. Paul W. Emerson will again be house physician. The senior house officers are: Dr. M. Sehan, Infants' Hospital, Boston; Dr. Carl H. Laws, Boston, and Dr. Warren P. Sisson, Peter Bent Brigham Hospital; the junior house officers—Dr. J. Sumner Teter, Arlie Vernon Boek, Dr. C. N. Moore, all of Boston; senior externs, Dr. James W. Bruce, City Hospital, Louisville, Ky.; junior externs, Alton Goldbloom, Montreal; and the medical assistants, Dr. J. Aloysius Drooz, Albany, N. Y.; Samuel A. Cohen, Roxbury; and Burton E. Lovesey, Philadelphia.

Brenton R. Lutz is chief of the food laboratory; Alfred W. Bosworth, A.M., the biological chemist; and Garm Norbury, the bacteriologist.

It is earnestly to be hoped that this important and particularly picturesque medical charity may continue to be well supported by a generous public in spite of the financial conditions incident to the European War.

## Massachusetts Medical Society.

### PROCEEDINGS OF THE SOCIETY.

#### ANNUAL MEETING.

*First Day, June 8, 1915.*

Clinics and demonstrations were held during the morning at the principal hospitals in Boston.

The annual meeting of the supervisors was held in the foyer of the Copley-Plaza Hotel, Boston, at 11.30 o'clock.

The annual meeting of the council was held in the foyer, at 12 o'clock noon.

Meetings of the sections were held in the Copley-Plaza Hotel, in the afternoon. The sections were officered and papers presented according to the following program:

#### MEETING OF THE SECTION OF MEDICINE.

Foyer, Copley-Plaza Hotel.  
2.30 o'clock.

##### *Officers of the Section of Medicine:*

Dr. Elliott P. Joslin, Boston, *Chairman*.

Dr. James H. Means, Boston, *Secretary*.

##### *Symposium on Heart Disease.*

1. The Use of Digitals in the Various Forms of Cardiac Arrhythmias.—Dr. Henry A. Christian, Boston.

2. The Relation of the Abnormal Heart Beat to Prognosis.—Dr. Paul D. White, Boston.

3. Treatment of Heart Disease.—Dr. F. C. Shattuck, Boston.

Discussion.—Dr. John Sproull, Haverhill; Dr. Francis W. Palfrey, Boston; Dr. J. H. Pratt, Boston.

Attendance, 120.

#### MEETING OF THE SECTION OF SURGERY.

State Dining-Room, Copley-Plaza Hotel.

2.30 o'clock.

##### Officers of the Section of Surgery:

Dr. Paul Thorndike, Boston, *Chairman*.

Dr. Edward P. Richardson, Boston, *Secretary*.

1. Demonstration of a method by which fragments of needles lodged in tissues near the surface of the body may be localized by means of magnetism.—Dr. George H. Monks, Boston.

2. Acute Perforations of Ulcers of the Stomach and Duodenum.—Dr. W. E. Faulkner and Dr. I. J. Walker, Boston.

3. Traumatic Perforations of the Duodenum.—Dr. David Cheever, Jr., Boston.

4. Cholelithiasis: An Argument for Early Operation.—Dr. Joshua C. Hubbard, Boston.

5. A Brief Consideration of Acute Pancreatitis, with Case Reports.—Dr. C. E. Durant, Haverhill.

Discussion.—Dr. P. E. Truesdale, Fall River; Dr. D. F. Jones, Boston.

Attendance, 140.

#### MEETING OF THE SECTION OF TUBERCULOSIS.

Ballroom, Copley-Plaza Hotel.

2.30 o'clock.

##### Officers of the Section of Tuberculosis:

Dr. Albert C. Getchell, Worcester, *Chairman*.

Dr. John B. Hawes, 2d, Boston, *Secretary*.

1. Non-tuberculous Cases at the State Sanatoria.—Dr. Elliott Washburn, Superintendent Rutland State Sanatorium.

Discussion.—Dr. I. J. Clarke, Haverhill; Dr. C. C. MacCorison, Superintendent North Reading State Sanatorium; Dr. Charles E. Perry, Superintendent Hampshire County Sanatorium.

2. Errors in Diagnosis in Chronic Diseases of the Lungs.—Dr. John B. Hawes, 2d, Boston.

Discussion.—Dr. Allen G. Rice, Springfield; Dr. Frederick T. Lord, Boston; Dr. H. C. Clapp, Boston.

3. What Constitutes Tuberculosis in Childhood.—Dr. John Lovett Morse, Boston.

Discussion.—Dr. Walter C. Bailey, Boston; Dr. Cleveland, Floyd, Boston; Dr. F. B. Talbot, Boston; Dr. H. D. Chadwick, Superintendent Westfield State Sanatorium.

Attendance, 100.

Officers of the Sections for the ensuing year were elected by the Sections respectively as follows:

*Section of Medicine:* Chairman, Henry Jackson, Boston; Secretary, F. Gorham Brigham, Boston.

*Section of Surgery:* Chairman, C. E. Durant, Haverhill; Secretary, W. M. Boothby, Boston.

*Section of Tuberculosis:* Chairman, Albert C. Getchell, Worcester; Secretary, John B. Hawes, 2d, Boston.

The Shattuck Lecture was delivered in the foyer of the Copley-Plaza Hotel, in the evening, by Dr. Joel E. Goldthwait, of Boston, on "An Anatomic and Mechanistic Conception of Disease." (See BOSTON MEDICAL AND SURGICAL JOURNAL, June 17, 1915, page 881.)

At the close of the lecture there was an informal reception to the president and a popular concert in the ballroom, and refreshments were served, the attendance being 477.

#### Second Day, June 9, 1915.

The Society met at the Copley-Plaza Hotel for the exercises of the one hundred and thirty-fourth anniversary. The President, Dr. C. F. Withington, was in the chair, and about 130 Fellows were present during the morning.

The minutes of the last meeting were read and accepted.

The secretary announced that during the past year the Society had lost by death 52 Fellows, by resignation 25, by deprivation of the privileges of fellowship 48, making a total loss of 125. The Society had gained 203 Fellows as follows: Restoration by Council, 9; readmitted by Censors, 2; new Fellows, 192, a net gain of 78, making the total membership, 3582.

The president introduced Dr. Kate Campbell Mead, of Middletown, delegate from the Connecticut State Medical Society. A motion thanking thirteen Fellows for their unselfish and efficient services as experts in the defence of suits for malpractice against Fellows of the Society, passed by the Council on the previous day, was read by the secretary and voted unanimously.

Papers were read according to this program, being devoted to the following topics, viewed from the standpoint of Public Health and Preventive Medicine. Each speaker was limited to ten minutes.

1. The Work and Aims of the State Department of Health.—Dr. Allan J. McLaughlin, Boston.

2. Pneumonia.—Dr. Frederick T. Lord, Boston.

3. Infant Mortality.—Dr. John Lovett Morse, Boston.

4. Typhoid Fever.—Dr. M. W. Richardson, Jamaica Plain.

5. Preventable Heart Disease.—Dr. Roger I. Lee, Cambridge.

6. Tuberculosis.—Dr. Arthur K. Stone, Boston.

7. Syphilis.—Dr. Abner Post, Boston.

8. Contagious Diseases.—Dr. Eugene R. Kelley, Boston.

The Annual Discourse was delivered at twelve o'clock by Dr. Everett A. Bates, of Springfield, on "Some Perplexities in Modern Medicine." (See BOSTON MEDICAL AND SURGICAL JOURNAL, June 10, 1915, page 843.)

In the afternoon there was a combined meeting of the Sections of Medicine and Surgery in the Surgical Amphitheatre, Boston City Hospital, under the chairmanship of Dr. Elliott P. Joslin and the secretaryship of Dr. James H. Means, when the following program was presented:

#### COMBINED MEETING.

##### Symposium on Empyema.

1. The Medical Aspects of Empyema and Pulmonary Abscess.—Dr. F. T. Lord, Boston.

2. The Recognition of Pleural Disorders by X-rays, with Especial Reference to Empyema.—Dr. Percy Brown, Boston.

3. The Pneumodynamics of the Treatment of Empyema.—Dr. F. C. Cotton, Boston.

4. The Surgical Treatment of Chronic Empyema.—Dr. F. B. Lund, Boston.

5. Lung Abscess and Bronchiectasis from a Surgical Point of View; End Results of Acute and Chronic Empyema.—Dr. Wyman Whittemore, Boston.

Discussion.—Dr. George G. Sears, Boston; Dr. John Homans, Boston; Dr. James S. Stone, Boston; Dr. Frank L. Richardson, Boston.

Attendance, 140.

The Annual Dinner was served in the ball-room of the Copley-Plaza Hotel, in the evening, to 763 members and guests. The president made a short address and felicitously introduced the following speakers: His Honor Grafton D. Cushing, Lieutenant-Governor of Massachusetts; The Very Reverend Edmund S. Rousmaniere, Dean of the Cathedral Church of St. Paul, Boston; Mr. Charles H. Grandgent, Professor of Romance Languages in Harvard University; and Former President and Professor William H. Taft, of New Haven.

Adjourned at 11 p.m.

WALTER L. BURRAGE, *Secretary*.

# ADMISSIONS REPORTED FROM JUNE 11, 1914, TO JUNE 9, 1915.

Year of Admission	Name	Residence	Medical College
1915	Ahlstrom, Hjalmar, Quincy	Quincy	12
1914	Allison, Carl Edwin, Wakefield	Wakefield	12
1915	Anderson, Victor Vance, Cambridge	Cambridge	37
1914	Andrews, Benjamin Franklin, Worcester	Worcester	12
1915	Arey, Harold Carleton, Worcester	Worcester	5
1915	Atwood, Blanche Louise, Worcester	Worcester	12
1915	Austin, James Cornelius, Spencer	Spencer	7
1914	Ayers, Charles Elton, South Boston	South Boston	12
1915	Bagnall, Elmer Stanley, Roslindale	Roslindale	12
1914	Baldwin, Edith Elizabeth, Springfield	Springfield	33
1914	Barney, Willis Oliver, Boston	Boston	12
1914	Baxter, Clarence Pennell, Topsfield	Topsfield	12
1914	Bell, Conrad, Waltham	Waltham	11
1914	Bell, Richard Dana, Somerville	Somerville	11
1914	Berry, Charles Francis, Boston	Boston	7
1915	Blake, Francis Gilman, Roxbury	Roxbury	11
1915	Blake, James Eddy, Roslindale	Roslindale	17
1915	Bonehm, Julius Benjamin, Boston	Boston	6
1914	Bonell, Raymond Peter, Boston	Boston	12
1914	Boyd, Francis Peter, Springfield	Springfield	12
1915	Bowen, Alfred Preston, Lynn	Lynn	11
1915	Brindamour, Joseph Edmond, Holyoke	Holyoke	38
1914	Brown, Herbert Rutherford, Jamaica Plain	Jamaica Plain	11
1914	Buck, Clifton Leon, Danvers	Danvers	12
1914	Buckley, Daniel Joseph, Arlington	Arlington	12
1915	Burns, Walter Linn, Lynn	Lynn	11
1915	Caines, Richard John Ridgway, Boston	Boston	12
1915	Carpenter, Robert John, North Adams	North Adams	12
1914	Chamberlin, Harold Augustus, Worcester	Worcester	12
1915	Chandler, Harold Beckles, West Newton	West Newton	11
1915	Chase, Joseph Jr., Weymouth	Weymouth	10
1914	Cheever, Austin Walter, Mattapan	Mattapan	11
1915	Chronquest, Alfred Peter, Danvers	Danvers	12
1915	Clarke, Mary Ella, Malden	Malden	12
1915	Clarke, Willis Earle, Malden	Malden	12
1914	Coates, Edward Augustus, Jr., Winthrop	Winthrop	12
1914	Cook, James Henry, Braintree	Braintree	12
1914	Cook, John William, Mansfield	Mansfield	43
1915	Courle, Wadie Fadoul, Boston	Boston	35
1914	Coursey, Frank Rudolph, Boston	Boston	12
1914	Cox, Oscar Francis Jr., Boston	Boston	12
1914	Crabtree, Ernest Granville, Boston	Boston	11
1914	Creamer, William Henry, Fall River	Fall River	11
1914	Cronin, Herbert Joseph, Cambridge	Cambridge	11
1914	Cunningham, Joseph Henry, Cambridge	Cambridge	11
1914	Cunningham, Thomas Edw., Jr., Cambridge	Cambridge	11
1914	Curran, John Francis, Worcester	Worcester	12
1914	Cutler, Myron Fred, Southbridge	Southbridge	12
1915	Cutler, Raymond William, Worcester	Worcester	12
1914	Davis, Henry Levi, Lynn	Lynn	12
1914	Dowling, John Joseph, Boston	Boston	11
1914	Dunham, Adeline Frances, Cambridge	Cambridge	12
1914	Eaton, Henry Douglas, Stockbridge	Stockbridge	17
1915	Eldam, Carl Hermann, Lawrence	Lawrence	43
1915	Ellison, Daniel James, Lowell	Lowell	12
1915	Emery, William Edward, Beverly	Beverly	14
1915	Emmons, Henry Manning, Jamaica Plain	Jamaica Plain	10
1915	Fenton, Alfred Archibald, Walpole	Walpole	22
1914	Finnerty, Charles William, Somerville	Somerville	7
1914	Fleet, William Ernest, Cambridge	Cambridge	12
1914	Fleming, Edwin Rahn, Medford	Medford	20
1914	Forster, John Ferguson Cooke, Holyoke	Holyoke	24
1915	Fraim, Irving William, Worcester	Worcester	12
1915	Fraser, Somers, Boston	Boston	11
1914	Gaylord, James Frederick, Springfield	Springfield	14
1914	Godfrey, Henry White, Auburndale	Auburndale	11
1915	Gosline, Harold Inman, Hathorne	Hathorne	11
1915	Grady, Thomas Henry, Clinton	Clinton	8
1915	Greene, Edward Chace, Northampton	Northampton	13
1915	Greene, Jeremiah Augustine, Worcester	Worcester	11
1915	Grey, Ernest George, Roxbury	Roxbury	6
1915	Grocshinsky, Herman, New Bedford	New Bedford	9
1914	Gunter, Fred Clarke, Somerville	Somerville	12
1914	Gwinnell, Alfred Weston, Brighton	Brighton	12
1914	Gwynne, Samuel Carlton, Worcester	Worcester	12
1914	Haley, William Thomas, Boston	Boston	12
1914	Hanscom, Ridgely Fernald, Boston	Boston	5
1915	Harkins, William Joseph, Jr., Quincy	Quincy	22
1914	Haskins, Frank Eugene, Boston	Boston	12
1914	Hayes, William Francis, Beverly	Beverly	12
1915	Hiltbold, Werner, Easthampton	Easthampton	22
1914	Holzer, William Francis, Worcester	Worcester	14
1915	Hoyt, Edward Malcolm, Georgetown	Georgetown	11
1914	Hurley, Daniel Joseph, Castletown	Castletown	11
1915	Jackson, Roy Chase, Worcester	Worcester	22
1915	Jacoby, Rudolph Jr., Weymouth	Weymouth	10
1915	Johnson, Herbert Lester, Brookline	Brookline	12
1915	Horrax, Gilbert, Roxbury	Roxbury	6
1914	Kelley, Edward Joseph, Watertown	Watertown	12
1915	Kerrigan, John Joseph, Fall River	Fall River	7
1914	Killam, Franklin Harrison, Medford	Medford	12
1914	King, George Elbert, Monson	Monson	22
1914	Lane, Clayton Rogers, Fitchburg	Fitchburg	22
1915	Larrabee, Frank Walton, Boston	Boston	14
1914	Lawley, Bruce Irving, Arlington	Arlington	12
1914	Leary, Alfred James, Newton	Newton	12
1914	Leavitt, Pierce Henry, Boston	Boston	11
1914	Lee, Wesley Terence, Somerville	Somerville	10
1914	Lewis, Seth Ames, Springfield	Springfield	10
1915	Limauro, Louis Herbert, Lynn	Lynn	33
1915	Lindsay, John Randall, Tewksbury	Tewksbury	11
1914	Lyman, Henry, Boston	Boston	11
1914	MacDonald, Frederick Livingston, Waltham	Waltham	22
1915	Macdonald, Duncan, Haverhill	Haverhill	10
1914	MacKay, William Henry, Worcester	Worcester	12
1915	MacKenzie, Roland Chester, Waltham	Waltham	12
1914	MacKnight, William Frank, Boston	Boston	11
1914	MacLeod, Emily Clark, Boston	Boston	12
1915	MacLeod, John Malcolm, Quincy, readmitted	Quincy	24
1915	Mains, Herbert Llewellyn, Danvers	Danvers	22
1914	Mason, Broadstreet Henry, Worcester	Worcester	5
1915	McIntosh, Jennie Grace, Worcester	Worcester	12
1914	McIver, George Albert, Worcester	Worcester	22
1915	McKechnie, Frederick Joseph, Springfield	Springfield	11
1914	McLaughlin, Allan Joseph, Boston	Boston	30
1914	McLaughlin, Arthur Otis, Haverhill	Haverhill	12
1915	McLellan, William Edwin, Lynn	Lynn	32
1914	McWeeny, Bernadette Marie, Boston	Boston	12
1914	Merrill, Adelbert Samuel, Boston	Boston	12
1915	Merrill, Everett Albert, Lynn	Lynn	12
1915	Meserve, Edwin Alonzo, Watertown	Watertown	11
1914	Metcalfe, Richard, Boston	Boston	12
1914	Meyer, Edward James, Somerville	Somerville	40
1915	Mills, Alfred Ewing, Somerville	Somerville	10



Year of Admission.	Name	Residence.	Medical College.
1914	Monahan, John Ambrose, Clinton	.....	12
1915	Moore, George Andrew, Palmer	.....	43
1914	Moore, Mary Teresa, Boston	.....	12
1914	Moriarty, Patrick Maurice, Springfield	.....	4
1914	Morse, Charles Frederick, Boston, readmitted	.....	22
1914	Mosher, Marshall James, Waltham	.....	22
1914	Mossman, George, Fitchburg	.....	22
1915	Murphy, Daniel Francis, Beverly	.....	12
1914	Nathanson, Elias Saul, Lynn	.....	32
1914	Newton, Edward Roswell, Somerville	.....	11
1915	Niles, Edward Harry, Danvers	.....	14
1914	Nishan, Hampartsumian Miguerditch, Boston	.....	41
1915	Noble, Ermy Corser, Mattapan	.....	24
1914	Normand, Jean Napoleon, Fall River	.....	7
1914	Nute, Albert James, Boston	.....	11
1914	O'Keefe, Edward Scott, Lynn	.....	11
1914	O'Rourke, Edward James, Cambridge	.....	12
1914	Parker, Raymond Brewer, Reading	.....	11
1914	Partridge, Thomas Jefferson, Cambridge	.....	10
1915	Pavides, Socrates Yakovas, Haverhill	.....	17
1914	Pearce, George Girdwood, New Bedford	.....	17
1914	Perkins, Franklin Haskins, Wrentham	.....	12
1914	Perkins, Roy Stanley, Salem	.....	5
1915	Poirier, George Henri, Boston	.....	12
1914	Provost, Raoul Gaston, Taunton	.....	22
1914	Riemer, Hugo Bruno Charles, Norwood	.....	11
1914	Robertson, Jessie Wilhelmine, Cambridge	.....	12
1914	Robins, Samuel Alexander, Lynn	.....	12
1915	Rochford, Grace Elizabeth, Roxbury	.....	12
1914	Rochford, Richard Augustine, South Boston	.....	11
1914	Roderick, Charles Elvin, West Somerville	.....	12
1914	Rodger, James Yeams, Lowell	.....	10
1914	Rogers, John Andrews, Lowell	.....	12
1914	Root, Raymond Richmond, Georgetown	.....	11
1914	Rounseville, Wilfrid Ellsworth, Attleborough	.....	11
1914	Ryder, Walter Irenaeus, South Boston	.....	12
1915	Safford, Moses Victor, Jamaica Plain	.....	5
1915	Segall, Samuel Kolman, New Bedford	.....	12
1914	Sennott, John Ralph, Cambridge	.....	11
1915	Shaw, Francis, Somerville	.....	11
1914	Simmons, Edward Burnside, Worcester	.....	12
1915	Simonds, Frederick Artemas, Cambridge	.....	12
1915	Smillie, Wilson George, Jamaica Plain	.....	11
1915	Smith, Ernest Elmer, Worcester	.....	20
1914	Smith, William David, Boston	.....	11
1914	Smith, William Francis, Malden	.....	12
1915	Solomon, Harry Caesar, Boston	.....	11
1914	Sparks, Ernest Elliot, Cohasset	.....	22
1914	Stokes, Leroy Tyler, Haverhill	.....	14
1915	Sullivan, Elizabeth Ann, Framingham	.....	12
1914	Sullivan, Francis Augustus, Cambridge	.....	12
1914	Sylvester, Nathan Rowland, Jr., W. Somerville	.....	10
1915	Taveira, Arthur Joaquim, New Bedford	.....	32
1914	Ten Broeck, Carl, Boston	.....	11
1914	Thom, Douglas Armour, Monson	.....	22
1914	Thompson, Charles Arthur, Newton Highlands	.....	7
1915	Thompson, John Stephen, Cambridge	.....	4
1915	Tianl, Bernardo, Lawrence	.....	42
1915	Tibbetts, Guy Daniel, Arlington	.....	12
1914	Towle, Clarence Clarke, Somerville	.....	20
1915	Towne, Edward Bancroft, Roxbury	.....	11
1915	Trull, Alfred Chase, Haverhill	.....	32
1915	Underhill, Samuel Graham, Lynn	.....	11
1914	Wainshel, Percy William, Lynn	.....	12
1915	Webber, Wolfert Gerson, Needham	.....	11
1914	White, Everett, Lynn	.....	7
1914	White, George Arthur, Cambridge	.....	12
1914	Wickham, Thomas William, South Boston	.....	11
1914	Wilkins, George Arthur, Revere	.....	8
1914	Young, Edward Wallace, New Bedford	.....	12

Total, 192+2 = 194.

- 4 University of Georgetown, Medical Department.  
5 Medical School of Maine.  
6 Medical Department of the Johns Hopkins University.  
7 College of Physicians and Surgeons, Baltimore, Md.

- 8 Baltimore Medical College.  
9 Long Island College Hospital.  
10 Boston University School of Medicine.  
11 Harvard University Medical School.  
12 Tufts College Medical School.  
13 University of Michigan, Department of Medicine and Surgery.  
14 Dartmouth Medical School.  
17 Columbia University College of Physicians and Surgeons.  
20 Jefferson Medical College.  
22 University of Vermont, Medical Department.  
24 McGill University, Medical Department.  
32 University of Maryland, School of Medicine.  
33 Woman's Medical College of Pennsylvania.  
35 Medical College of Virginia.  
37 Hospital College of Medicine, Louisville, Ky.  
38 Laval University School of Medicine, Canada.  
39 Detroit College of Medicine.  
40 Dalhousie University Medical School, N. S.  
41 American School of Medicine of Syrian Protestant College, Beirut, Syria.  
42 Regia Università degli Studi, Naples, Italy.  
43 College of Physicians and Surgeons, Boston.

## OFFICERS OF THE MASSACHUSETTS MEDICAL SOCIETY.

Chosen by the Council June 8, 1915.

Charles F. Withington, Boston, President.  
Edmond F. Cody, New Bedford, Vice-President.  
Walter L. Burrage, Boston, Secretary.  
Edward M. Buckingham, Boston, Treasurer.  
Edwin H. Brigham, Brookline, Librarian.

## STANDING COMMITTEES.

- Of Arrangements.—J. D. Barney, E. L. Young, Jr., J. H. Young, J. L. Huntington, R. H. Milner, C. H. Lawrence, Jr.  
On Publications and Scientific Papers.—G. B. Shattuck, E. W. Taylor, R. B. Osgood, J. S. Stone, F. T. Lord.  
On Membership and Finance.—C. M. Green, A. Coolidge, Jr., Samuel Crowell, F. W. Taylor, Alfred Worcester.  
On Ethics and Discipline.—J. A. Gage, J. W. Bartol, Henry Jackson, G. deN. Hough, S. B. Woodward.  
On Medical Education and Medical Diplomas.—H. C. Ernst, C. F. Palater, H. W. Newhall, J. F. Burnham, C. Frothingham, Jr.  
On State and National Legislation.—C. F. Withington, F. G. Wheatley, G. W. Gay, A. K. Stone, W. P. Bowers.  
On Public Health.—M. J. Rosenau, W. I. Clark, Annie L. Hamilton, E. H. Bigelow, R. I. Lee.

Officers of the general society elected by the District Societies at their annual meetings in April and May, 1915, for the ensuing year. Councillors, Censors, and Commissioners of Trials assumed office June 8, 1915.

## VICE-PRESIDENTS (EX-OFFICIO).

## PRESIDENTS OF DISTRICT SOCIETIES.

(Arranged according to seniority of fellowship in the Massachusetts Medical Society.)

- J. J. McCarty, Lowell.....Middlesex North  
F. C. Granger, Randolph.....Norfolk South  
M. V. Pierce, Milton.....Norfolk  
W. D. Swan, Cambridge.....Middlesex South  
R. W. Greene, Worcester.....Worcester  
Paul Thorndike, Boston.....Suffolk  
N. C. King, Campello, Brockton.....Plymouth  
J. B. Donnelly, West Gardner.....Worcester North  
W. R. Weiser, Springfield.....Hampden  
O. W. Cobb, Easthampton.....Hampshire  
E. C. Fish, Melrose.....Middlesex East

E. H. Howard, Pittsfield.....	Berkshire	W. H. Allen, Mansfield.....	Bristol North
V. A. Reed, Methuen.....	Essex North	J. E. Urquhart, Ashfield.....	Franklin
C. A. Bonney, Jr., New Bedford.....	Bristol South	G. M. Kline, Hathorne, Danvers.....	Essex South
J. P. Nickerson, West Harwich.....	Barnstable		

## DEATHS REPORTED FROM JUNE 11, 1914, TO JUNE 9, 1915.

Admitted	Name	Place of Death	Date of Death	Age
1896	Adams, James Forster Alleyne	Pittsfield	July 27, 1914	70
1897	Amadon, Alfred Mason	Saranac Lake, N. Y.	Mar. 6, 1915	48
1896	Baker, Chester Monroe	Hyannis	Dec. 12, 1914	39
1872	Baker, William Henry	Waltham	Nov. 26, 1914	69
1885	Baldwin, Henry Cutler	Boston	Feb. 23, 1915	55
1879	Baylies, Andrew	Worcester	July 7, 1914	76
1900	Bouteille, Harry Clifton	Danvers	Jan. 24, 1915	39
1896	Brewster, James Bartlett	Plymouth	Nov. 7, 1914	72
1896	Bullock, George Dexter	Weymouth	Dec. 6, 1914	55
1881	Carolin, William Terence	Lowell	Nov. 21, 1914	62
1873	Chandler, Luther Graves	Townsend	Mar. 1, 1915	70
1890	Clark, Caleb Wakefield	Melrose Highlands	June 13, 1914	60
1867	Cogswell, Edward Russell	Cambridge	Dec. 22, 1914	73
1904	Coolidge, Frederick Shurtliff	New York	May 14, 1915	49
1872	Davison, Archibald Thompson	Cambridge	Sept. 19, 1914	70
1862	Derby, Hasket	Falmouth Foreside, Me.	Aug. 21, 1914	79
1899	Downey, William Henry	Taunton	Oct. 1, 1914	42
1890	Dresser, George	Chicopee	May 16, 1914	76
1883	Ellis, Dean Samuel	Worcester	June 20, 1914	57
1894	Field, James Brainerd	Lowell	Apr. 15, 1915	57
1862	Flaher, Theodore Willis	Waverley	Oct. 10, 1914	77
1887	Flint, Omar Alpha	Dracut	Feb. 18, 1915	71
1884	Gavin, Michael Freebern	South Boston	May 20, 1915	71
1902	Gibson, Robert Francis	Hill, N. H.	Aug. 15, 1914	40
1878	Haven, Henry Cecil	Stockbridge	Feb. 19, 1915	62
1869	Hayden, David Hyslop	Lynn	Feb. 21, 1915	76
1914	Holmes, Louise Dodson	Springfield	Sept. 10, 1914	47
1891	Horgan, John Augustus	Roxbury	Nov. 11, 1914	50
1886	Howe, James Sullivan	Brookline	Nov. 21, 1914	56
1884	Kelley, Joseph Henry	Worcester	Nov. 10, 1914	52
1874	Kelley, Seth Wight	Woburn	May 6, 1915	66
1905	Kelly, William Dugan	Boston	Feb. 8, 1915	34
1865	Langmaid, Samuel Wood	Brookline	Feb. 8, 1915	77
1895	MacDonald, Archibald Elexis	Jamaica Plain	Apr. 27, 1915	87
1908	Mann, William Orris	Boston	April 9, 1915	45
1906	McAllester, John Joseph Hector	New Bedford	Apr. 16, 1915	37
1895	Mehegan, Daniel Joseph	Taunton	April 21, 1915	46
1884	Mooney, Philip	Gloucester	Sept. 27, 1914	50
1889	Mumford, James Gregory	Clifton Springs, N. Y.	Oct. 18, 1914	50
1872	Nelson, William	North Leominster	May 14, 1915	76
1890	Pelce, Amos Hagar	West Newbury	Feb. 9, 1915	54
1896	Pomeroy, William Henry	Springfield	June 10, 1914	56
1882	Quimby, Sumner Ferdinand	Gloucester	July 10, 1914	62
1863	Ransom, Nathaniel Morton	Somerville	Jan. 8, 1915	84
1896	Saville, Sumner Carruth	Cambridge	May 27, 1915	48
1906	Scannell, James Joseph	South Boston	Feb. 19, 1915	40
1862	Thayer, George Dickinson	Northampton	Mar. 16, 1915	87
1907	Watts, Joseph Palmer	Wakefield	Feb. 18, 1915	32
1886	Webber, Amos Paterson	New Bedford	Mar. 20, 1915	55
1872	White, Emory Lincoln	Somerville	Apr. 29, 1915	60
1846	White, Robert	Cambridge	Sept. 27, 1914	91
1903	Wood, Henry Walton	Philadelphia, Pa.	Jan. 12, 1915	35
Total, 52.				

## COUNCILORS, 1915-1916.

NOTE.—The initials M. N. C. following the name of a councilor indicates that he is a member of the Nominating Committee. V. P. indicates that the member is a councilor by virtue of his office of president of a district society, and so vice-president of the general society. C. indicates that he is chairman of a standing Committee.

## BARNSTABLE.

J. P. Nickerson, V. P., West Harwich.  
E. E. Hawes, M. N. C., Hyannis.  
C. W. Milliken, Barnstable.

## BERKSHIRE.

E. H. Howard, V. P., Pittsfield.  
Henry Colt, Pittsfield.  
L. A. Jones, M. N. C., North Adams.  
E. A. Kennedy, Great Barrington.  
J. H. Riley, North Adams.

## BRISTOL NORTH.

W. H. Allen, V. P., Mansfield.  
Sumner Coolidge, Middleborough.  
H. D. Dean, Taunton.  
F. A. Hubbard, M. N. C., Taunton.

## BRISTOL SOUTH.

C. A. Bonney, Jr., V. P., New Bedford.  
E. F. Cody, V. P., New Bedford.  
C. F. Connor, New Bedford.  
W. A. Dolan, Fall River.  
R. W. Jackson, Fall River.  
A. H. Mandell, New Bedford.  
H. G. Wilbur, M. N. C., Fall River.

## ESSEX NORTH.

V. A. Reed, V. P., Methuen.  
R. V. Baketel, Methuen.  
J. E. Bryant, Haverhill.

## ESSEX NORTH (Continued)

Hugh Donahue, Haverhill.  
T. R. Healy, Newburyport.  
G. E. Kurth, Lawrence.  
E. H. Noyes, Newburyport.  
H. P. Robinson, Amesbury.  
F. W. Snow, M.N.C., Newburyport.

## ESSEX SOUTH,

G. M. Kilne, V-P., Hathorne.  
C. H. Bangs, Lynn.  
R. E. Bicknell, Swampscott.  
N. P. Breed, Lynn.  
J. F. Donaldson, Salem.  
D. J. Finnegan, Gloucester.  
H. K. Foster, Peabody.  
P. P. Johnson, Beverly.  
Butler Metzger, Lynn.  
P. P. Moore, Gloucester.  
J. F. O'Shea, M.N.C., Lynn.  
H. E. Sears, Beverly.

## FRANKLIN,

J. E. Urquhart, V-P., Ashfield.  
G. F. Twitchell, M.N.C., Greenfield.  
N. P. Wood, Northfield.

## HAMPTON,

W. R. Weiser, V-P., Springfield.  
T. S. Bacon, Springfield.  
E. P. Bagge, Holyoke.  
J. M. Birnie, Springfield.  
R. S. Benner, Springfield.  
A. L. Cooley, Chicopee Falls.  
E. L. Davis, Springfield.  
G. L. Henderson, Holyoke.  
M. B. Hodakins, Palmer.  
S. A. Mahoney, M.N.C., Holyoke.  
A. G. Rice, Springfield.  
H. W. VanAllen, Springfield.

## HAMPSHIRE,

O. W. Cobb, V-P., Easthampton.  
J. S. Hitchcock, Northampton.  
P. A. Hudnut, Chesterfield.  
F. H. Smith, M.N.C., Hadley.

## MIDDLESEX EAST,

E. C. Fish, V-P., Melrose.  
C. J. Allen, M.N.C., Winchester.  
E. S. Jack, Melrose.  
W. H. Keleher, Woburn.  
E. D. Richmond, Reading.

## MIDDLESEX NORTH

J. J. McCarty, V-P., Lowell.  
W. G. Eaton, Lowell.  
J. A. Gage, C., Lowell.  
G. O. Lavalee, Lowell.  
W. P. Lawler, Lowell.  
T. G. McGannon, M.N.C., Lowell.  
A. G. Scoboria, Chelmsford.  
C. E. Simpson, Lowell.

## MIDDLESEX SOUTH,

W. D. Swan, V-P., Cambridge.  
Albert August, Cambridge.  
M. H. Bailey, Cambridge.  
H. T. Baldwin, Chestnut Hill.  
S. O. Baldwin, Framingham.  
F. E. Bateman, Somerville.  
J. E. Cleaves, Medford.  
C. H. Cook, Natick.  
H. F. Curtis, Somerville.  
E. A. Darling, Cambridge.  
G. W. Gay, Chestnut Hill.  
C. M. Hutchinson, Cambridge.  
A. A. Jackson, Everett.  
J. B. Lyons, Charlestown.  
S. F. McKeen, Allston.  
C. E. Mongan, Somerville.  
C. E. Prior, Malden.  
Godfrey Ryder, Malden.  
Joseph Stanton, Newton.  
E. H. Stevens, M. N. C., Cambridge.  
J. O. Tilton, Lexington.  
Julia Tolman, Arlington.

## MIDDLESEX SOUTH (Continued)

G. T. Tuttle, Waverley.  
H. P. Walcott, Cambridge.  
C. T. Warner, Marlborough.  
Alfred Worcester, Waltham.

## NORFOLK,

M. V. Pierce, V-P., Milton.  
J. W. Ball, Brookline.  
E. F. Bartol, Milton.  
E. H. Brigham, Libra., Brookline.  
A. N. Broughton, Jamaica Plain.  
P. W. Carr, Hyde Park.  
A. A. Cushing, Brookline.  
W. W. Duckering, Dorchester.  
H. C. Ernst, C., Jamaica Plain.  
M. H. A. Evans, Dorchester.  
E. W. Finn, Dedham.  
W. W. Harvey, Roxbury.  
G. W. Kaan, Brookline.  
Bradford Kent, Dorchester.  
Joseph Kittredge, Brookline.  
Harry Linenthal, Roxbury.  
F. P. McKenna, Jamaica Plain.  
W. H. McMann, Jamaica Plain.  
T. J. Murphy, M. N. C., Roxbury.  
A. P. Perry, Jamaica Plain.  
W. H. Robinson, Jamaica Plain.  
M. J. Rosenau, C., Brookline.  
T. M. Shay, Roxbury.  
F. W. Sleeper, Dorchester.  
C. H. Stack, Hyde Park.  
E. P. Starbird, Dorchester.  
R. T. Stearns, Mattapan.  
J. L. Sullivan, Roxbury.

## NORFOLK SOUTH,

F. C. Granger, V-P., Randolph.  
C. S. Adams, Wollaston.  
J. C. Fraser, East Weymouth.  
J. A. Gordon, M.N.C., Quincy.

## PLYMOUTH,

N. C. King, V-P., Campello.  
A. A. McKeen, Whitman.  
Gilman Osgood, Rockland.  
A. E. Paine, M. N. C., Brockton.  
F. J. Ripley, Brockton.  
F. G. Wheatley, North Abington.

## SUFFOLK,

Paul Thorndike, V-P., Boston.  
J. D. Barney, C., Boston.  
E. S. Boland, South Boston.  
H. I. Bowditch, Boston.  
E. H. Bradford, Boston.  
G. W. W. Brewster, Boston.  
E. M. Buckingham, Treas., Boston.  
W. L. Burrage, Sec., Boston.  
David Cheever, Boston.  
H. A. Christian, Boston.  
A. L. Chute, Boston.  
E. A. Codman, Boston.  
J. A. Cogan, Boston.  
G. A. Cragin, Boston.  
E. G. Cutler, Boston.  
R. L. DeNormandie, Boston.  
Albert Ehrenfried, Boston.  
Channing Frothingham, Jr., Boston.  
C. M. Green, C., Boston.  
J. B. Hawes, 2d, Boston.  
W. C. Howe, Boston.  
H. T. Hutchins, Boston.  
Henry Jackson, Boston.  
R. W. Lovett, Boston.  
J. J. Minot, M.N.C., Boston.  
W. A. Morrison, East Boston.  
J. L. Morse, Boston.  
Abner Post, Boston.  
Anna G. Richardson, Boston.  
D. D. Scannell, Boston.  
G. B. Shattuck, C., Boston.  
G. C. Smith, Boston.  
Mary A. Smith, Boston.

## SUFFOLK (Continued)

P. M. Smith, Boston.  
R. M. Smith, Boston.  
F. B. Talbot, Boston.  
H. F. Vickery, Boston.  
D. H. Walker, Boston.  
John Warren, Boston.  
C. F. Withington, Pres. and C., Boston.

## WORCESTER.

R. W. Greene, V-P., Worcester.  
F. H. Baker, Worcester.  
W. P. Bowers, Clinton.  
C. A. Church, Milbury.  
J. T. Duggan, Worcester.  
W. J. Delahanty, Worcester.  
Homer Gage, Worcester.  
David Harrower, M. N. C., Worcester.  
W. L. Johnson, Uxbridge.  
G. O. Ward, Worcester.  
C. D. Wheeler, Worcester.  
L. F. Woodward, Worcester.  
S. B. Woodward, Worcester.

## WORCESTER NORTH,

J. B. Donnelly, V-P., West Gardner.  
C. E. Bigelow, Leominster.  
A. P. Mason, Fitchburg.  
E. A. Sawyer, M. N. C., Gardner.  
J. W. Stimson, Fitchburg.

## CENSORS, 1915-1916.

## BARNSTABLE.

E. E. Hawes, Supervisor, Hyannis.  
F. A. Binford, Hyannis.  
S. H. Sears, Yarmouth Port.  
C. E. Harris, Hyannis.  
S. F. Haskins, Cotuit.

## BERKSHIRE.

Henry Colt, Supervisor, Pittsfield.  
William Galvin, Blackinton.  
H. E. Stockwell, Stockbridge.  
G. P. Hunt, Pittsfield.  
A. C. England, Pittsfield.

## BRISTOL NORTH.

F. A. Hubbard, Supervisor, Taunton.  
H. B. Baker, Dighton.  
H. G. Ripley, Taunton.  
T. F. Clark, Taunton.  
T. J. Robinson, Taunton.

## BRISTOL SOUTH.

W. A. Dolan, Supervisor, Fall River.  
J. G. Hathaway, New Bedford.  
J. C. S. Pitta, New Bedford.  
W. T. Learned, Fall River.  
I. N. Tilden, Mattapoisett.

## ESSEX NORTH.

T. W. Healy, Supervisor, Newburyport.  
A. N. Little, Newburyport.  
F. D. McAllister, Lawrence.  
J. J. O'Sullivan, Lawrence.  
H. L. Conner, Haverhill.

## ESSEX SOUTH.

N. P. Breed, Supervisor, Lynn.  
O. C. Blair, Lynn.  
G. K. Blair, Salem.  
R. E. Bicknell, Swampscott.  
W. V. McDermott, Salem.

## FRANKLIN.

G. P. Twitchell, Supervisor, Greenfield.  
C. L. Upton, Shelburne Falls.  
C. C. Messer, Turner's Falls.  
E. G. Best, Greenfield.  
J. W. Cram, Colrain.

## HAMPTON.

T. S. Bacon, Supervisor, Springfield.  
J. L. Bliss, Holyoke.  
J. P. Schneider, Palmer.  
A. L. Damon, Wilbraham.  
Philip Kilroy, Springfield.

## HAMPSHIRE.

F. H. Smith, Supervisor, Hadley.  
W. H. Adams, Northampton.  
G. W. Rawson, Amherst.  
A. G. Minshall, Northampton.  
W. W. Miner, Ware.

## MIDDLESEX EAST.

W. H. Keleher, Supervisor, Woburn.  
C. E. Ordway, Winchester.  
L. M. Crosby, Wakefield.  
R. D. Perley, Melrose.  
R. R. Stratton, Melrose.

## MIDDLESEX NORTH.

W. G. Eaton, Supervisor, Lowell.  
Rodrigue Migneault, Lowell.  
R. J. Meigs, Lowell.  
J. A. Gage, Lowell.  
E. J. Clark, Lowell.

## MIDDLESEX SOUTH.

Albert August, Supervisor, Cambridge.  
J. F. O'Brien, Charlestown.  
F. W. Rice, Brighton.  
E. S. Abbot, Waverly.  
C. E. Hills, South Natick.

## NORFOLK.

E. P. Starbird, Supervisor, Dorchester.  
R. W. Hastings, Brookline.  
R. N. Bridgman, Jamaica Plain.  
W. C. Kite, Milton.  
M. J. Cronin, Roxbury.

## NORFOLK SOUTH.

J. C. Fraser, Supervisor, East Weymouth.  
W. A. Drake, East Weymouth.  
W. J. McCausland, Quincy.  
T. J. Dion, Quincy.  
F. E. Jones, Quincy.

## PLYMOUTH.

F. J. Ripley, Supervisor, Brockton.  
W. W. Fullerton, Brockton.  
R. B. Rand, North Abington.  
Joseph Frame, Rockland.  
J. H. Drohan, Brockton.

## SUFFOLK.

G. A. Craigin, Supervisor, Boston.  
C. N. Cutler, Chelsea.  
J. W. Cummin, Boston.  
W. H. Robey, Jr., Boston.  
W. C. Howe, Boston.

## WORCESTER.

C. D. Wheeler, Supervisor, Worcester.  
C. B. Stevens, Worcester.  
A. G. Hurd, Millbury.  
F. H. Washburn, Holden.  
G. E. Emery, Worcester.

## WORCESTER NORTH.

J. W. Stimson, Supervisor, Fitchburg.  
A. P. Lowell, Fitchburg.  
A. A. Wheeler, Leominster.  
W. F. Robie, Baldwinsville.  
B. H. Hopkins, Ayer.

COMMISSIONERS OF TRIALS.  
1915-1916.

Barnstable, W. D. Kinney, Osterville.  
Berkshire, H. B. Holmes, Adams.  
Bristol North, C. S. Holden, Attleborough.  
Bristol South, W. E. Synan, Fall River.  
Essex North, J. F. Croston, Haverhill.  
Essex South, J. E. Simpson, Salem.  
Franklin, F. E. Johnson, Erving.  
Hamden, P. A. Hoyt, Ludlow.  
Hampshire, J. M. Fay, Northampton.  
Middlesex East, M. A. Cummings, Winchester.  
Middlesex North, F. E. Varney, North Chelmsford.  
Middlesex South, L. M. Palmer, Framingham.  
Norfolk, A. P. Perry, Jamaica Plain.  
Norfolk South, N. S. Hunting, Quincy.  
Plymouth, F. J. Hanley, Whitman.  
Suffolk, F. B. Lund, Boston.



Worcester, E. V. Scribner, Worcester.  
Worcester North, F. H. Thompson, Fitchburg.

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1915-1916.

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## Correspondence.

### THE AMERICAN WOMEN'S WAR HOSPITAL.

PAIGNTON, SOUTH DEVON, ENGLAND, JUNE 15, 1915

Mr. Editor: Dr. Howard and I arrived here without any misadventures and found a well appointed hospital running to full capacity nearly all the time. I found on my arrival that I had been promoted to Director of Unit D, so I am stationed here indefinitely now and shall not go to France after all. The hospital is beautifully situated in large, well-kept grounds so there is ample space for the patients to exercise in, and they all seem to do well in the sunlight and fine clean air which we have. We are only a few moments' walk from the water, Tor Bay, and from the hospital can see Torquay on the left and Brixham on the right. We get some very interesting cases and in fact receive them quite quickly from the front, usually in lots of from 50 to 100. They are sent across the Channel in a hospital ship to Southampton and are then transferred to a well-equipped hospital train and distributed along the line to the various hospitals. The cases are of various types—some medical cases, mostly those who have been "gassed," and incidentally "gassing" certainly does play the mischief with the men, as it apparently gives them a very acute and painful form of bronchitis, and they have great difficulty in breathing and in some instances their eyes are very severely affected. Nearly all of the wounds are infected, but after the bullets and pieces of shrapnel are removed they clear up very rapidly and the way in which septic compound fractures clear up is really marvellous. I have at present several very interesting cases on my wards, one in particular, a man who was shot by a shrapnel bullet through the lower end of the sacrum. The bullet dodged the rectum and landed in the bladder. There are no symptoms save a small stream of urination, when standing, and some pain. When he lies down the stream is all right and there is no pain save at the very end. I am getting some good x-rays on him and am waiting for a cystoscope to arrive from London before I operate on him. We have also several cases of nerve injury, so we see the unusual here. I am sending you one of the reports on the first 1000 cases in which you may be interested.

Sincerely yours,

D. P. PETHALOW, M.D.

[The report which our correspondent encloses presents an interesting analysis of the first 1000 cases treated at the Hospital. Of these, 41% had perforating, and 59% non-perforating wounds. There were only three deaths.—EDITOR.]

### THE DEATH OF MADAME DEPAGE.

BRUSSELS, JUNE, 1915.

My dear Colleagues: I have received from a large number of you and notably from the committees which you have formed, the most touching tributes of sympathy and of condolence for the catastrophe of the *Lusitania* in which my wife lost her life.

These tributes are so numerous and so unanimous, that I wish to express to you, my dear colleagues, as the authorized representatives of the humanitarian sentiments which so honor the great American nation.

You all know, as I wrote to you when my wife left for America, for what purpose she accepted the mission which the Red Cross confided to her. In the presence of the unexampled miseries of which we have been the prey, she had resolved to solicit your fraternal assistance. You gave her that largely. I should

say "joyously" if the word could be pronounced in these times.

The letters my wife wrote to me in the course of her mission told me how you worked for her and revealed to me the extent and generosity of your projects for our wounded. Your hearts were open to our appeal; your country did not wait to come to our assistance. Powerful America wished to take under her protection our little people, tortured but always valiant.

My great sorrow does not permit me to reply as I wish I might to each one of you. Only to-day have I been able to measure,—thanks to the letter of your compatriot—Dr. Houghton—the extent of the gratitude I owe, to him first for having risked his life in trying to save that of my wife, and after that to you all for your devoted help in our common work.

Under the strain of my emotion, the sentiment of thankfulness is the only one to which at this moment, I am able to give expression. Permit me to do so with all my heart.

A. DEPAGE.

[The above is a translation of a letter sent by Dr. Depage to Dr. Richard H. Harte, of Philadelphia, with the request that it be published in acknowledgment of the many letters which he has received from America since the tragic death of Madame Depage.—EDITOR.]

#### BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JUNE 26, 1915.

##### CONTRIBUTIONS.

Dr. Emery R. Hayhurst, Columbus, Ohio..... \$ 5.00  
Benton County Medical Society, Rogers, Ark.. 5.00

Receipts for the week ending June 26th.....\$ 10.00  
Previously reported receipts..... 7447.00

Total Receipts.....\$7457.00

Previously reported disbursements:  
1625 standard boxes of food @ \$2.20.. \$3575.00  
1274 standard boxes of food @ \$2.30.. 2930.20  
- 353 standard boxes of food @ \$2.28.. 804.84

Total disbursements.....\$7310.04

Balance ..... \$146.96

F. F. SIMPSON, M.D., Treasurer,  
7049 Jenkins Arcade Bldg.,  
Pittsburg, Pa.

#### APPOINTMENTS.

NEW YORK POST-GRADUATE MEDICAL SCHOOL.—Dr. Edward J. MacNeil has been appointed director of the N. Y. Post-Graduate Medical School and Hospital in succession to Dr. Jonathan Wright, who has resigned. Dr. Morris S. Fine has been appointed adjunct professor of pathologic chemistry, Dr. Richard M. Taylor, adjunct professor of pathology and Dr. Paul A. Schule, lecturer in bacteriology.

#### BOOKS AND PAMPHLETS RECEIVED.

The Practical Medicine Series, Vol. III, The Eye Ear, Nose and Throat. The Year Book Publishers.

Occupational Affections of the Skin, by R. Prosser White, M.D. Paul B. Hoeber, 1915.

What Every Mother Should Know, by Charles G. Kerley, M.D. Paul B. Hoeber, 1915.

War Surgery, by Edward DeLorme. Paul B. Hoeber, 1915.

#### RECENT DEATHS.

DR. AUBREY H. FITCH, who died on June 25 at Brighton, Mass., was born at Ballie, N. S., on 1868. He received a degree in veterinary medicine from the University of Toronto and has practiced in Boston for many years. He is survived by his widow and by two daughters.

DR. SERAPH FREISSELL, who died of uremia on June 20 at Dalton, Mass., was born in Peru, on August 20, 1840. After graduating from Mt. Holyoke Seminary in 1860, she began the study of medicine in 1872 at the University of Michigan from which she received the degree of M.D. in 1875. In 1876 she settled at Pittsfield, Mass., and in 1884 removed to Springfield, where she continued active in the practise of her profession until a few years ago. In 1877 she was elected an honorary member of the Berkshire County Medical Society and in 1885 was admitted a member of The Massachusetts Medical Society and Hampden County Medical Society, but had not been a member of late years. During 1890 and 1891 she was resident physician and lecturer on physiology and hygiene at Mt. Holyoke College. She was unmarried.

DR. ALBERT WILLIAM HANCOCK, of Lawrence, Mass., was drowned while bathing at Salisbury Beach on June 18, 1915. He was born in Antigua, W. I., May 5, 1877, and was a graduate of the Harvard Medical School in the class of 1904. He was a fellow of the Massachusetts Medical Society, a member of the American Medical Association and of the Lawrence Medical Club. He is survived by his widow and one child.

DR. HOWARD MARSH, who died on June 25 at Cambridge, England, was born at Homersfield, Suffolk, England, in 1839. He was master of Downing College and professor of surgery at the University of Cambridge. He was a corresponding member of the New York Orthopedic Society, a Bradshaw lecturer in the Royal College of Surgeons of England and President of the Clinical Society of London. He was twice married and is survived by his second wife.

DR. FRANCIS TEMM, who died on June 27 at St. Louis was born in 1866. He was instructor in gynecology at the medical department of the University of St. Louis.

DR. SAMUEL BALDWIN WARD, who died on June 3 at Albany, N. Y., was born in 1842. He received the degree of A.B. from Columbia University in 1861 and that of M.D. in 1864 from Georgetown University. In 1867 he became curator of the medical museum of Columbia University and professor of anatomy at the Woman's Medical College of the New York Infirmary. In 1870 he became professor of surgery at the same institution and in 1876, professor of surgical pathology at the Albany Medical College. In 1884 he became dean of this college and its professor of the theory and practise of medicine.

DR. CHARLES F. WOODBUFF, who died on June 13 at New Rochelle, N. Y., was born in 1850. He entered the United States Navy at a surgeon in 1866, but in 1867 resigned and entered the army with the same grade. He rose to the rank of lieutenant colonel and served as chief surgeon of brigade on the staff of General Merritt in the Philippine campaign. He also travelled extensively as sanitary inspector for the United States of foreign army posts. He was the author of "The Effect of Tropical Light on White Men" and "Expansion of the Races."